Railway Age

Vol. 80 May 29, 1926 No. 26

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EDWARD A. SIMMONS, *President*
L. B. SHERMAN, *Vice-Pres.*
HENRY LEE, *Vice-Pres. & Treas.*
SAMUEL O. DUNN, *Vice-Pres.*
F. H. THOMPSON, *Vice-Pres.*
C. R. MILLS, *Vice-Pres.*
ROY V. WRIGHT, *Sec'y.*

CHICAGO: 608 South Dearborn St.
CLEVELAND: 6007 Euclid Ave.
LONDON, England: 34 Victoria St., Westminster, S. W. 1.
WASHINGTON: 17th and H Sts., N. W.
SAN FRANCISCO: 74 New Montgomery St.
NEW ORLEANS, MANDEVILLE, LA.
Cable Address: Urasigmee, London

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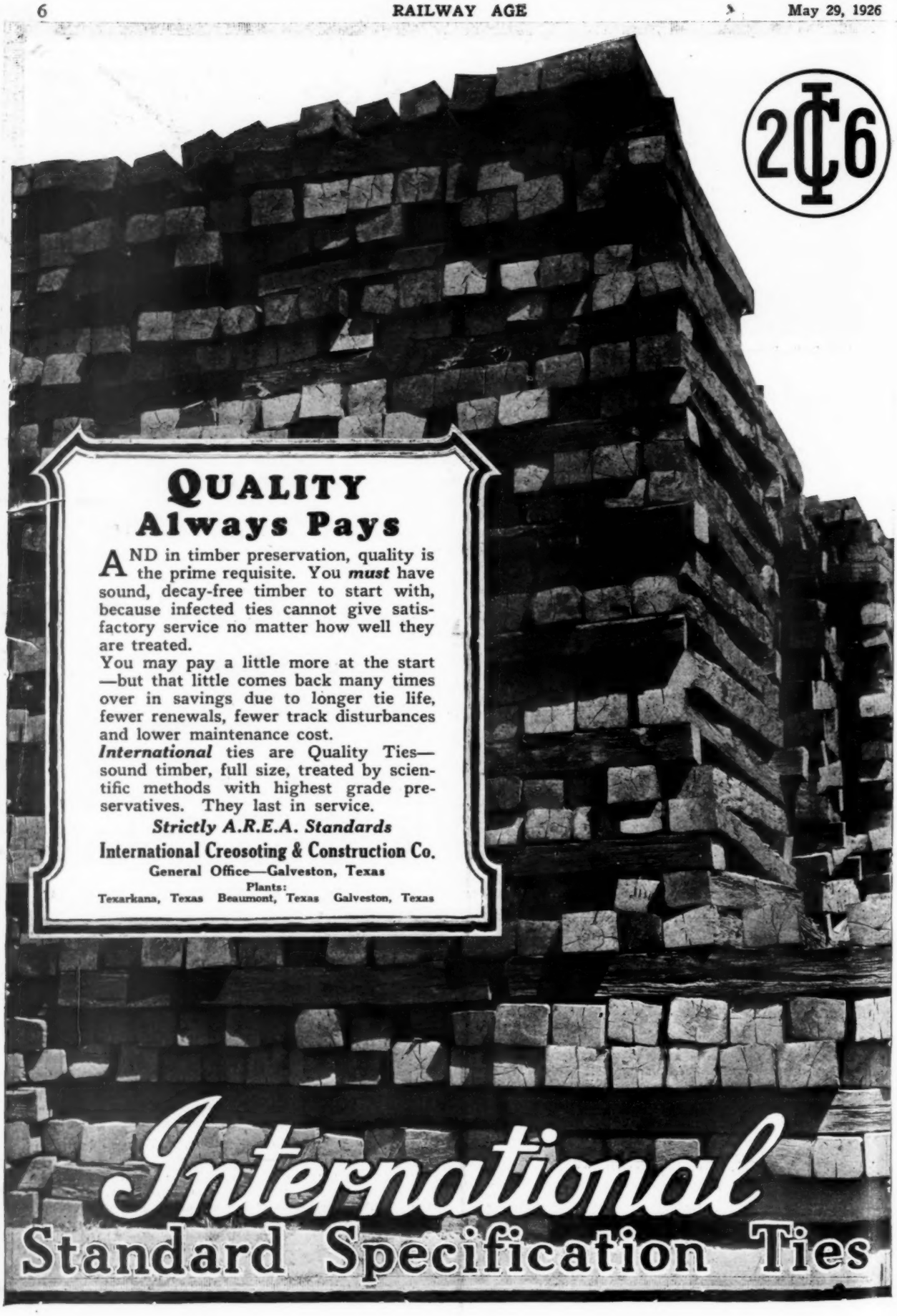
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QUALITY
Always Pays
AND in timber preservation, quality is the prime requisite. You must have sound, decay-free timber to start with, because infected ties cannot give satisfactory service no matter how well they are treated.
You may pay a little more at the start—but that little comes back many times over in savings due to longer tie life, fewer renewals, fewer track disturbances and lower maintenance cost.
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Railway Age

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A Meeting of Railroad Motor Transport Officers

A MOVEMENT is afoot to hold an informal meeting of railroad officers interested in highway motor transport at Atlantic City during the conventions on June 9-17. The specific date suggested is Friday, June 11. The time is ripe for officers interested in highway transportation to get together and compare notes. Many railroads are now engaged in activity along these lines, by contract with outside concerns or as actual operators of motor vehicles. Beyond question officers in charge of such work can benefit by becoming better acquainted and by seeking to profit by each others' experiences. On the other hand, officers of roads which have not yet entered the highway field but which are giving it careful study can undoubtedly learn a great deal from contact with men who have had actual experience in bus and truck operation. The proposed meeting therefore can probably do much toward assuring development by railroads in this field on sound lines. A railroad, even if only remotely interested in the problem, therefore, would doubtless benefit by having a representative at the meeting. The Atlantic City conventions have always been popular with all classes of railroad men—largely because of the exhibits. Undoubtedly, therefore, many railroad men interested in motor transport have already planned to attend, especially since the exhibits will include motor vehicles and accessories. For such persons attendance at the informal meeting proposed will entail no additional expense or loss of time. There are a multitude of questions which face a railroad which uses the highways in its business. The quicker these questions are answered, and answered correctly, the better for all concerned. This meeting will doubtless answer some of them; in addition it may lay the groundwork of an association which will serve as a clearing house for dealing with such problems.

Coal Burners Make Long Runs

IT is practically impossible for locomotives to stop at engine terminals without having time charged to them whether any repair work is actually done or not. When a fire is dumped, unburned coal is lost to the ash pit and another ton of fresh coal is required for firing up again. There are fuel standby losses and unavoidable, hence legitimate, costs for handling and hostling. All of these are potent reasons for keeping locomotives away from enginehouses as much as possible, except for the performance of necessary repair and conditioning work. A realization of the fundamental economics of the case has been responsible in no small degree for the extension of locomotive runs and the reduction in the number of intermediate terminals. Recent tests indicate that coal-burning locomotives can be operated past intermediate terminals, and over as great distances as oil burners, as far as fire conditions are concerned. For a considerable period the New York Central operated one of its trains a distance of about 1,000 miles between New York and Chicago without changing engines. In one test the Chicago, Burlington & Quincy operated an engine in mixed train service a distance of 2,645 miles with a single fire, the life of the fire being slightly over 183 hours, and it was the consensus of opinion that the fire could have been continued indefinitely, burning the average run of coal on the divisions in question. The Northern Pacific, as described on page 1145 of the *Railway Age* issue of April 24, operated a coal-burning locomotive almost 2,000 miles without receiving any terminal attention en route or, in fact, being uncoupled from the tonnage train it hauled. Four grades of coals, largely lignite in character, were burned. One of the latest reports is from the Terminal Railroad Association of St. Louis which has recently operated four switchers in continuous service for a period of 30 days without having the fires cleaned. These tests show what can be accomplished, with proper mechanical equipment and supervision, in the way of keeping fires in coal-burning steam locomotives. They afford an incentive to approach more nearly this performance in regular service.

Steam and Electric Locomotive Efficiencies

OPERATING factors and fuel economy of steam and electric locomotives were discussed in a paper at the meeting of the International Railway Fuel Association, held at Chicago last week, by H. S. Peck, supervisor of locomotive and power plant operation, Chicago, Milwaukee & St. Paul. The paper, an abstract of which is published elsewhere, is of exceptional value and is both comprehensive and unprejudiced. It seems desirable, however, to point out an apparent error which has been included. The report contains this statement: "It is common knowledge that even the most modern steam locomotive does not convert more than 8 per cent of the energy contained in the fuel into power at the rim of its driving wheels. In the case of the electric locomotive, it is not unusual to find that 35 per cent or 40 per cent of the energy available in the fuel or water power at the generating station is converted into actual pulling power." The 8 per cent efficiency given for steam locomotives is thermal efficiency, but that given for electrics is apparently computed on some other basis. For example, the paper states that power plant boiler efficiency may be as high as 93 per cent. A 60,000 kw. turbo-generator running under ideal conditions has a thermal efficiency of only 25 per cent. We therefore have only 23 per cent of the fuel energy available at the bus bars. Assuming a 15 per cent transmission line loss, a 2 per cent substation conversion loss as when only transformers are used, an 8 per cent trolley loss and a 15 per cent loss in the locomotive (these are all low values) we have efficiencies as follows: 23 per cent at the bus bars, 19.5 per cent at the substation input, 19.1 per cent at the substation output,

17.6 per cent at the pantograph and 14.9 per cent thermal efficiency at the rim of the drivers. The relative figures of 8 and 14.9 for the efficiencies of steam and electric locomotives are of course, values which represent the maximums which might be obtained under the best possible conditions with the latest types of equipment. Actual values are necessarily lower.

Carrying Out the Watson-Parker Law

PRESIDENT COOLIDGE having signed the Watson-Parker railway labor bill, it is now a law. Its purposes, like those of the labor provisions of the Transportation Act which it supersedes, are two-fold. They are, first, to cause the establishment and maintenance of fair and reasonable working conditions and wages on the railroads, and, secondly, to maintain friendly relations between the railways and their employees and thereby promote efficiency and avoid interferences with or interruptions of transportation.

Whether these purposes will be attained will depend upon the efforts made by railway managers and employees to carry out the new law in accordance with the spirit of its provisions. There have been wide differences among railway officers as to the desirability of this legislation. These differences should, as speedily as possible, be forgotten, and all the railways should co-operate to the end that the law may be given the best possible opportunity for accomplishing it objects.

Because of the developments which led up to the law's enactment this policy is especially essential to the future welfare of the railways. There are some railways that never looked with favor upon the labor provisions of the Transportation Act or the way they were administered; but most of the carriers long favored their retention and implicitly carried out the orders of the Railroad Labor Board. The attacks upon the labor provisions of the Transportation Act, which finally resulted in their destruction, were made principally by the leaders of the railway labor unions. While a majority of railway executives supported the Watson-Parker bill they did so chiefly as a concession to the labor leaders in the interest of peace; and the new law represents in a much greater measure the methods for settling labor controversies that the labor leaders favored than it does the methods that most railway executives preferred. Therefore, if all the railways join together in trying to carry out the law strictly in accordance with its provisions and spirit they will put it squarely up to the labor leaders to do the same thing.

The public will not be directly represented in the settlement of any labor dispute under the new law unless it is referred to an emergency commission appointed by the President. But the influence of public sentiment cannot be excluded merely by changes in a statute. The railways should closely co-operate in efforts to carry out the law so that whether it works satisfactorily or not the public will see that they have spared no reasonable effort to make it work in accordance with its intent.

While the Watson-Parker bill was under consideration there occurred an event of worldwide interest which should exert great influence upon the future relations between employers and employees in the United States. This was the general strike in Great Britain. In that country the average real wages of all classes of workers are less than half as great as in the United States, although the labor unions have relatively a much larger membership than in this country, are much more powerfully organized, and can strike with much greater effect. The differences between conditions in the two countries demonstrate that something far more important than the organization of labor and its power to tie up industry with strikes is required to enable working men to get high wages and a high standard of living. This something else is a large average production per worker. There never have been and never can be in any country high wages and a high standard of living without a large average production per worker, because wages must be paid from what is produced.

A large production per worker, and therefore a high average wage, are dependent mainly upon two things. The first of these is efficient work by the workers themselves. The second is efficient management of industry and a large investment of capital in improved plants and machinery which, with a given effort on the part of each worker, will increase the amount produced per worker. The products of a railroad are passengers carried one mile and tons carried one mile. The railways of this country and their employees can contribute toward increasing the wages and raising the standard of living of the people of the United States only through such co-operation between employees and management and such investment of capital in the railways as will enable them to increase their passenger miles and ton-miles of output per employee. The experience of Great Britain shows that strikes soon become utterly futile as a means of advancing wages and improving the living conditions of the working man where output per man is not constantly increasing.

The most important point regarding this entire matter that working men and labor leaders are prone to overlook or disregard is the vital part played by capital in making possible increases in production and in wages. Railway labor leaders and railway employees in the United States are no exception to this general tendency. The constant flow of hundreds of millions of dollars of new capital into our railroad industry each year is necessary not only to enable it to enlarge its service to the public, but also to enable it year by year to increase its output of passenger-miles and ton-miles per employee. This constant increase in output per employee is necessary in the railroad and every other industry to make it possible for industry in the long run to pay wages of increasing purchasing power. The needed flow of capital into the railroad industry cannot be secured unless the railroads can earn a fair return upon the capital already invested in them and on the additional capital constantly needed by them. Nevertheless, for years it has been the policy of railway labor leaders in their publications and public utterances to exaggerate the profits being earned by the railways and to join in agitation against them tending to reduce the rates they can charge, the profits they can make and the capital the investment of which they can secure.

The most important question raised by the passage of the Watson-Parker bill is whether it will promote real co-operation between the railways and their employees which will be of benefit not only to both of them but also to the public. Any so-called "co-operation" that does not benefit each of these classes will in the long run be recognized as a fraud; for real and fair co-operation will benefit everybody. It will help to enable each large group of railways to earn a fair return and attract needed capital, to prevent strikes and to increase the efficiency and economy of operation. The increase in the efficiency and economy of operation will enable the railways not only to earn a fair return, but to pay higher wages in proportion to the cost of living and to render good service to the public at reasonable rates.

It is essential to bringing about real co-operation that the railways shall recognize the right of the employees to have reasonable wages, that the employees shall recognize the right of the railways to earn a fair return, and that

both of them shall recognize the right of the public to be rendered good service at reasonable rates. If under the Watson-Parker bill representatives of the railways and of the employees sit down together to confer or resort to arbitration with a recognition of sound economic principles, and with the intention of being fair and helpful to each other, and also to the public, in what they say and do the new law will produce satisfactory results. Otherwise it will fail of its purposes as have all other laws that have been passed in this country for similar purposes.

How Government and Business do Business

THE difference between the tendencies in private business and in much government business in this country are indicated by two different trends that prevail upon our railways. While the railways are subject to government regulation, the taxes they pay are the only form of their outgo over which their officers have no control and over which government officers have complete control; and taxes are their only expenses which constantly increase regardless of all changes in traffic and operating conditions. The period of "inflation" in business ended in 1920, but the period of inflation of railway taxes has not ended, but apparently has just got well started.

In the first three months of this year railway taxes were $87,740,000. This was $5,070,000, or 6.1 per cent, more than in the first three months of 1925, 11.3 per cent more than 1924, 15.2 per cent more than in 1923, 26.0 per cent more than in 1922, 34.0 per cent more than in 1921, and 41.0 per cent more than in 1920, the great year of "inflation."

"This upward trend of taxes since the end of the period of business inflation contrasts strikingly with the trend of railway operating expenses. Almost every single item of operating expenses has been steadily reduced since 1920, the total annual reduction having been about $1,250,000,000, or 20 per cent. On the other hand, in 1920 railway taxes were $281,000,000, while in 1925 they had increased to $363,000,000. If they continue to increase throughout this year at the same rate as during the first quarter they will amount in 1926 to $385,500,000, or to about $1,055,000 daily, as compared with about $743,000 daily in the inflation year 1920.

The huge reduction in operating expenses that has been made has rendered it possible largely to reduce the rates that the public pays the railways and has been accompanied by an unprecedented improvement in the transportation service rendered to it. These things have been accomplished by private management. Most of the increased taxes paid by the railways have been collected by the state governments. Have the governments that collected them so used them as to give better service to the public? The primary function and duty of governments is to protect the people from crimes of violence. Has there been a reduction of such crimes or an increase in the certainty of their punishment? Has the management of public affairs by those who have had the collection and expenditure of the increased state taxes levied upon the railways as well as upon other property owners been increasing in economy or in wastefulness?

The facts about the downward trend of operating expenses and the upward trend of taxes on the railways, and the changes that have been occurring in the service rendered to the public by the railways and by the governments that tax them, seem to well illustrate the continuing need for "less government in business and more business in government."

Maintenance of Way Forces Becoming More Stable

STATISTICS which have recently become available regarding the expenditures for maintenance of way and structures during 1925 point to marked improvements in the efficiency of the work of this department. They show also that greater stability of employment has had an important bearing on this result.

The improvement made in the conduct of maintenance of way work is best shown by a comparison of the statistics for 1925 with those for 1923, two years that are particularly comparable from the standpoint of the traffic handled and the earnings. As shown in the table of maintenance of way expenditures by months given below, the total expenditure in 1925 was $824,892,860, as compared with $841,376,694 in 1923. This table also shows the expenditures for labor alone, aggregated $431,730,726 in 1925, as compared with $444,303,538 in 1923. In other words, the expenditures for labor in 1925 were less than those in 1923 by $12,572,812, although the total expenditure for maintenance of way and structures was greater in 1925 than in 1923 by $3,516,166. This means that expenditures for materials in 1925 exceeded those for 1923 by $16,088,978, and since the general level of prices in 1925 was lower than in 1923 it is clear that more material was applied in 1925 with a smaller outlay for labor than in 1923.

CLASS I ROADS, INCLUDING SWITCHING AND TERMINAL COMPANIES.

	Maintenance of Way and Structures Expenses		Total Compensation Paid Maintenance of Way Employees	
	1925	1923	1925	1923
January	$56,971,378	$52,834,350	$31,801,725	$29,955,984
February	54,923,944	48,360,959	28,839,804	27,254,384
March	61,090,232	57,140,357	31,787,150	31,871,108
April	68,091,818	65,224,501	34,810,231	34,151,504
May	72,473,731	74,473,432	37,099,264	39,401,511
June	74,749,192	77,241,548	39,420,020	42,220,124
July	74,959,550	76,461,700	40,204,591	42,809,993
August	77,486,514	80,895,847	40,297,728	45,571,541
September	76,754,627	76,488,904	38,909,518	40,772,647
October	77,158,242	81,747,720	40,284,290	42,864,033
November	66,402,072	68,577,472	35,014,387	36,157,078
December	63,832,421	61,785,586	33,262,018	31,273,631
Total	$824,892,860	$821,376,694	$431,730,726	$444,303,538

Wage levels for the two years under comparison being substantially the same, the difference in the expenditures for labor is necessarily accounted for by the difference in the number of men employed. This is brought out clearly in the second table showing the average number of maintenance of way employees by months in these two years. Two pertinent facts stand out in this table. The first is to be found in the general averages for the years, 390,494 employees in 1925 and 401,723 employees in 1923, or an average difference between the two years of 11,229. But more important than this, is the marked difference in the spread between the size of the forces in the summer and winter months of the two years. In 1923 the minimum force was 326,627 men in February and the maximum was 471,485 in August, or a difference of 144,558. In 1925 the minimum was 329,983 in February and the maximum was 431,822 in August, or a difference of 101,839. Expressed in percentages this means that the force in August, 1923, was greater than that in February of that year by 44.3 per cent, while the increase in 1925 between these two months was only 30.9 per cent.

A comparison of the figures for the two years by months also demonstrates that the more favorable showing in 1925 was accomplished much more largely by curtailing the increase in the force during the summer months than it was by holding more men during the winter. Thus, the average force in January and Febru-

ary of 1925 was only about 3,400 men greater than that for the same two months of 1923, while the summer

CLASS I ROADS, INCLUDING SWITCHING AND TERMINAL COMPANIES.

	Maintenance of Way Employees	
	1925	1923
January	330,420	326,783
February	329,983	326,627
March	338,667	342,353
April	379,377	380,513
May	409,787	418,894
June	422,373	445,765
July	431,517	456,090
August	431,822	471,185
September	428,808	450,013
October	425,647	436,865
November	395,301	409,819
December	362,224	355,766
Average	390,494	401,723

force during 1925 was from 9,000 to 39,000 less than in the earlier year. Off-hand consideration of this fact might lead to the conclustion that the more favorable showing of 1925 was due to a smaller program of work during that year. But this conclusion is not consistent with the fact that more material was applied during that year than during 1923. Consequently, it must be concluded that a smaller force in 1925 accomplished more work than the force employed in 1923.

This demonstrated increase in efficiency represents the composite result of a number of influences, primary among which is the greater stabilization of the maintenance of way forces. Thus substantially 69 per cent of the summer force in 1925 was comprised of men who had been carried through the preceding winter, as compared with a permanent force representing 56 per cent of the total for the summer months of 1923. However, greater use of labor saving equipment, improved maintenance of way methods and a higher standard of maintenance were also important factors which must be taken into consideration.

New Books

Railway Track and Maintenance. By E. E. Russell Tratman, associate editor, Engineering News-Record, 490 pages, 6 in. by 9 in. Bound in cloth. Published by McGraw-Hill Book Company, 370 Seventh avenue, New York. Price $5.

Anyone who undertakes to write a book on a subject of as broad a scope as that implied by the title of this work is confronted with two alternatives—to prepare an exhaustive treatment covering certain restricted phases of the subject in minute detail or to cover the subject from all angles, including related matters which may be deemed to have some bearing on the main topic. In Railway Track and Maintenance the author has adopted the second of these two ideas to an extent which indicates that his primary appeal is to the student or to the young man entering the railway service who must gather as quickly as possible a general knowledge of railroading insofar as it relates to his duties in railway engineering or maintenance of way work. If this was the author's intention he has succeeded, for there is little which has to do with railway track and its maintenance which has not been touched upon in some form.

The book is primarily descriptive of the physical structure and of the organization and methods used in its construction and repair. In carrying out the endeavor to make the book all inclusive within the space available it has been necessary to confine the treatment of some phases to a rather elementary outline. But limited space is given to the equipment used in the performing of work and with few exceptions the author has carefully refrained from mentioning the names of proprietary materials and devices.

The book opens with an introductory chapter on the general nature of track and its maintenance, followed by chapters dealing with roadbed and ballast, ties, rail, fastenings, etc., and other physical features of the fixed property, including brief reference to water and coal facilities, cinder disposal, yards and terminals, passenger stations, etc. The second half of the book carries the sub-title "Maintenance Work and Economics" and deals with organization and methods covering not only track maintenance but also "bridge work and telegraph work," "signals," "improvements and betterments," "emergency work," "records, reports and accounts," etc. Frequent reference is made to the work of the American Railway Engineering Association and to the standards and practices of specific railroads, the name of certain railroads appearing with considerable frequency.

Books and Articles of Special Interest to Railroaders

(Compiled by Elizabeth Cullen, Reference Librarian, Bureau of Railway Economics, Washington, D. C.)

Books and Pamphlets

How to Analyze and Use Transportation Statistical Reports, by Dr. Julius H. Parmelee. Railroad and other transportation statistics described and analyzed, with brief historical outline of each group of statistics. 92 p. Published by LaSalle Extension University, Chicago.

The Map of America's Making, by Paul M. Paine. A large colored map which admirably supplements the histories, adventure stories, and other records of our discovery and expansion from the voyages of Leif Ericson to the days of river steamboats, the wagon trains and the Pony Express. Pub. by R. R. Bowker, New York, $2.50.

The Missouri Pacific Railroad Company—An Analysis. 4 p. Pub. by Hodenpyl Hardy Securities Corporation, New York and Chicago. *Apply.*

The Rise of Modern Industry, by J. H. Hammond and Barbara Hammond. Part I outlines commercial changes and development caused by discovery of America and the consequent shift in trade routes and industry. Part II considers the English industrial revolution, particularly the revolution in transport (Ch. 5), the steam engine (Ch. 8) and the revolution in iron (Ch. 9). Social consequences are discussed in Part III. 281 p. Pub. by Harcourt, Brace & Co., New York City. $2.75.

Water Purification Plants and Their Operation, by Milton F. Stein. The chemistry of water, plant construction and operation presented so as to be understood by non-technically trained operators. 3d Edition. 316 p. Pub. by John Wiley & Sons, New York City. $3.

Periodical Articles

Boring Through the Backbone of the American Continent, by Edward A. Vandeventer. The history and progress of the Moffatt Tunnel. Sunset, June, 1926, p. 27-29, 58-60.

The Ingenuity of American Business, by George Tufts. Profitable "side-lines" being manufactured by various large companies—for instance street railways have gone in for buses, a manufacturer of railroad cars also makes buses and airplane engines, and a firearms company also produces refrigerating and washing machinery. Magazine of Wall Street, May 22, 1926, p. 118-119.

On Collecting Trunks, by Elizabeth Lucas. Changes in travel luggage as reflected in trunks of various periods, some of which would present curious problems to the baggage department if railroads had developed sooner. House Beautiful, June, 1926, p. 777, 818-820.

Les Ruptures Accidentelles des Rails—Les Maux et les Remèdes, by Merklen. A careful and comprehensive study of the causes of transverse fissures (tache ovale argentée) and other rail failures and what can be done to remedy the situation. American reports such as those of W. C. Cushing, A.R.E.A. committees, and *Railway Age* comments are quoted. Revue Générale des Chemins de Fer, May, 1926, p. 346-387.

Letters to the Editor

[The RAILWAY AGE *welcomes letters from its readers and especially those containing constructive suggestions for improvements in the railway field. Short letters—about 250 words—are particularly appreciated. The editors do not hold themselves responsible for facts or opinions expressed.]*

Mechanical Division Scholarships at Stevens

Stevens Institute of Technology,
Hoboken, New Jersey.

TO THE EDITOR:

I have before me the *Railway Age* of April 17, in which, on page 1087, is an item which gives the impression that scholarships are awarded each year by Stevens Institute of Technology to young men nominated by the American Railway Association. This is not correct. If this were true, there would be twelve scholarships available in all, our course being four years in length. There are three scholarships in all.

ALEX. C. HUMPHREYS,
President.

The College Man in Railroad Work

ALBANY, N. Y.

TO THE EDITOR:

The reply by John H. Fish in the *Railway Age* of April 10, 1926, page 1,000, to my earlier letter to you has been brought to my attention recently. I wish to endorse Mr. Fish's statement that fidelity and diligent application are essential to success. The importance of this point cannot be over-estimated, but these two factors alone do not constitute the ladder of success. Ability may be present but without proper directional application and supervision these elements of a successful career may remain merely elements. When a task ceases to be mentally stimulating, efficiency suffers and progress ceases.

The larger public utility and manufacturing companies recognize this situation and are now applying remedial measures in the form of training courses varying in length from several weeks to as many years. These courses are designed to give the new man an insight into the working of the organization as a whole, with more detailed study of the component parts with which he may became directly identified. During this period he becomes familiar with the methods and reactions of the several departments. A knowledge of the other man's job increases flexibility of component parts, and may result in savings in time and labor through an understanding of the most direct way of securing co-ordination between departments. Through this period of training the individual is not lost sight of, and he is constantly guided by experienced men. As a result when a man trained in this fashion is assigned a project, he knows the proper method of attack and immediately becomes a productive member of the organization. A few of the larger railroads have established excellent apprentice courses for training men in this way.

While I realize that this policy has not been generally adopted by the railroads, does it not seem probable that they could profit through the experience of industrial concerns? Railroading as an art is becoming more technical every day. The colleges are prepared to supply the technically trained man, but his development as a railroad man is largely a matter of properly guided activity.

T. U. C. K.

Gross Ton-Miles Per Train Hour

NEW HAVEN, Conn.

TO THE EDITOR:

S. R. Truesdell, in the *Railway Age* of March 13, offers some interesting comments on Professor Cunningham's article, "Gross Ton-Miles per Train Hour as a Means of Increased Efficiency," which appeared in the *Railway Age* of February 6.

The general policy that heavier train loading on a heavy tonnage line is more efficient than light loading moved at a high speed, is not questioned, but Mr. Truesdell in his comparison of a 78 per cent rating vs. the full rating at a lower speed has apparently overlooked the fact that the engine and train crew would receive two hours overtime at time and one-half on a run of 100 miles at 10 miles per hour, resulting in an increase of 37½ per cent over a straight day's pay which obviously would more than offset the increased straight time wage cost of the 28 per cent additional train miles made necessary by the reduced rating and greater speed.

A similar situation occurs when it is suggested that Professor Cunningham's example of a 2,000-ton train (that had been speeded up from 10 to 7 hours for a hundred mile run) had better have been increased to 2,500 tons with no change in speed. In this case, on account of the two hours overtime caused by the low speed, crew wages would be 10 per cent greater per ton-mile than if moved in trains of 2,000 tons within 8 hours. The decrease in locomotive repairs and in other locomotive and train supplies per ton-mile might more than offset the increase in wages, but it is thought that a more efficient combination of speed and load could be made than any of those given.

Theoretically, the most efficient operation for a run of 100 miles or more would be the greatest train-load that could be handled at a scheduled speed of 12½ miles per hour, as both engine and trainmen's schedules are based on this speed, and any decrease under this average means that we are paying 50 per cent above normal for part of the run, and since crew wages constitute about one-third of the total direct train expenses, they have an important bearing on the total cost. On runs of less than 100 miles (for which the crews must receive a full day's pay), the lowest operating costs will probably be obtained with the greatest trainload that can be handled at a speed sufficient to complete the run in eight hours, providing that this speed is not so low that it will interfere with passenger trains or other traffic; e. g., on an 80-mile run a scheduled speed of 10 miles an hour would permit an increased trainload and at the same time protect overtime payments to crews.

Crew wages for all Class I roads in 1924 constituted 34 per cent of the total direct train costs, fuel 27.5 per cent, locomotive repairs 26.5 per cent, and engine house expenses, other locomotive and train supplies the remaining 12 per cent. It is realized that in determining the most sufficient trainload and speed too much weight should not be given to crew wage cost alone as it is only one-third of the total cost, but locomotive repairs (which are slightly over one-fourth of the total) are so much more

intangible, as constantly proved by the varying mileages and costs (often of the same type of locomotive over the same territory), that the most attention should be given to finding the lowest cost of operation from the standpoint of crew wages and fuel which not only make up over 60 per cent of total train expenses but can be more definitely determined. Dynamometer car tests on the short line division of the New Haven indicated that the lowest fuel consumption per 1,000 gross ton-miles was not obtained with the heaviest train and lowest speed but with a fairly heavy train moved at a good rate of speed. This is contradictory to Mr. Truesdell's assumption that fuel consumption would not vary with the train-load and speed because of the fact that the amount of work done is the same. It also might be added that car repairs would probably be higher with the heavier trains on account of the greater possibility of pulled and broken draw heads and similar failures.

Every railroad has its own problems to solve regarding the most efficient speed on different divisions. On the shore line of the New Haven, which is a heavy tonnage line for New England territory, the freight trains must be moved at a considerably greater speed than would be necessary on most roads because of the extremely heavy passenger traffic but as long as engine and trainmen's schedules remain on the present basis, it seems extremely doubtful if any road will find a scheduled speed as low as 10 miles per hour on runs of 100 miles or more in length the most efficient possible, any more than it will find an extremely high speed and light train load desirable.

F. G. GORDON,
Assistant Statistician, Operating Department, New York, New Haven & Hartford.

Day Coach Service Compares with Pullman

San Francisco, Cal.

TO THE EDITOR:

After reading a letter in the *Railway Age* of February 6 over signature of R. H. Russell, voicing "A Criticism of Day Coach Service," we believe your readers might be interested in the type of day coach service that is standard with the Southern Pacific. Fast service plus cleanliness and comfort for the convenience of day coach travelers has attained a high degree of perfection on Southern Pacific lines.

The company, while constantly improving the service and equipment of its through limited trains, has not neglected the interest of its coach passengers.

Much study is devoted to the design and construction of day coaches. Cars are substantially built of steel to insure maximum safety, have six-wheel trucks for riding comfort, and are fitted with comfortable seats. Paddle fans keep the cars cool when days are warm. In colder weather thermostatic heat control devices automatically maintain an even temperature.

Every precaution is taken to see that the company's hygienic and sanitary standards are maintained. Employees watering and icing cars always wear white duck uniforms and caps and use rubber gloves when handling ice.

Clean white canvas is used to cover ice being transported to cars. Contamination of water is guarded against and water tanks have separate compartments, preventing the direct contact of ice with water. At frequent intervals ice trucks, water and ice tanks are thoroughly sterilized with live steam. Facilities for this service have been established at division points.

Washbowls and paper towels are provided in both men's and women's lavatories and sanitary conveniences are kept scrupulously clean while cars are in service.

On through trains a porter in charge of day coaches sees that the cars are properly ventilated, swept and dusted and is of general assistance to passengers. Where traffic is too light to warrant carrying a special day coach porter over the entire run it is customary on Southern Pacific lines for janitors to board and clean coaches while trains are en route between station stops. Janitor service also is regularly rendered at division points.

All day lunch cars, an innovation in railroad catering devised and perfected by the company's commissary department, provide hot and cold foods at popular prices to tourist car and day coach passengers. These cars serve sandwiches, pies, hot meat pies, baked beans, corned beef hash, eggs, coffee, tea, milk, etc., to those who do not care to patronize the more elaborate dining car service. Foods are of the highest quality available and prices no higher than those asked at the average good lunch counter.

In most instances the solid coach trains are the fastest operated between given points. For example, of 28 passenger trains plying between San Francisco and Sacramento the two fastest make the run in 2 hours and 50 minutes and both of these trains cater exclusively to day coach passengers. The Daylight Limited which is operated entirely for the benefit of coach passengers is not only the fastest train on the road, but is also among the best equipped in the country. This train runs between San Francisco and Los Angeles, a distance of 471 miles along the coast line of California.

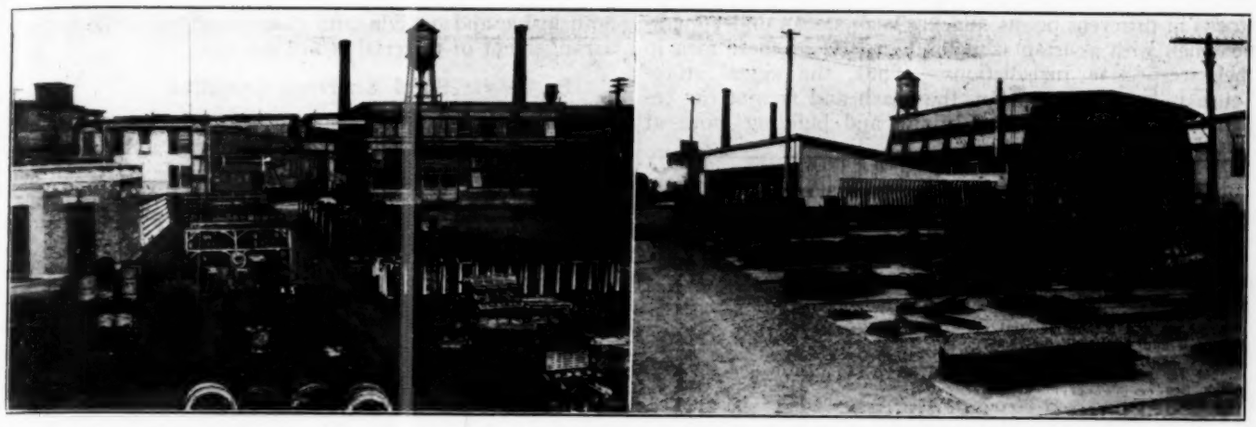
The Daylight Limited was inaugurated in 1922 to make it possible for the tourist to enjoy the scenic journey comfortably by daylight. That season the train was operated on Fridays and Saturdays between April 28 and November 25. Service was resumed on the same schedule April 27, 1923. On June 10 a Sunday train was established; Thursday service went into effect July 5 and a week later the Daylight Limited became a regular daily run. The train has been consistently popular and financially has scored an outstanding success.

All the comforts and most of the luxuries to be found on the finest long distance trains are standard on this train, and aside from meals no charges of any kind, other than the cost of a first class rail ticket, are made for seats or service. Parlor observation cars designed especially for the train make sightseeing uniquely enjoyable. The observation platform is unusually large and seats 32 persons comfortably. Wide plate glass windows protect against inclement weather. Ahead of the platform is an enclosed parlor with the usual handsomely upholstered movable chairs. A women's retiring room fitted with lounge, chairs and large mirror, and a smoking compartment for men, are popular features of the car.

A club car similar to that used on the San Francisco Overland Limited is provided for the benefit of smokers. A Southern Pacific diner maintaining all day service furnishes meals a la carte at moderate prices, and is supplemented by an all day lunch car. Day coach porters give service equal to that required on Pullman cars and no effort is spared in insuring the passenger's comfort.

The Daylight Limited carries no passengers for points between Los Angeles and San Francisco and makes but two stops and these only for operating purposes. The type of service rendered on this and on other solid day coach trains operated by the company, has done much to popularize day coach travel in the west.

F. S. MCGINNIS,
Passenger Traffic Manager, Southern Pacific, Pacific Lines.

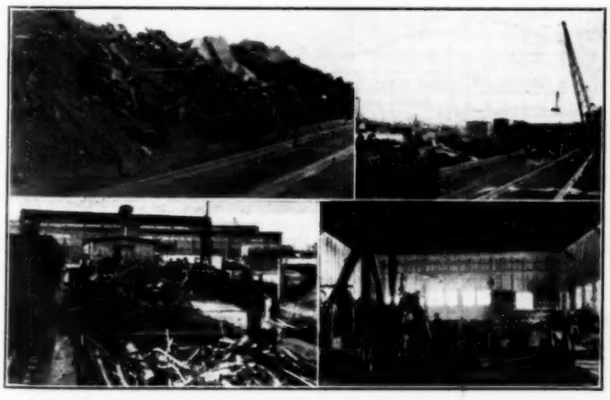


Left: The Locomotive Casting Supply Yard at West Springfield. Right: Car Castings at the Same Point with the Superheater Unit Shed in the Background

Boston & Albany Has Revolutionized Its Supply Conditions

Find advantages of separate stores department not confined to large roads, stocks reduced

IF the Boston & Albany had been questioned ten years ago concerning its views on the justification of a single and separate organization for handling materials on a road less than 500 miles long, it would probably have been non-committal. But today its answer is emphatically in the affirmative. To inquire into the reasons for the change of position is to find a study in railway storekeeping with sundry interesting aspects.



Upper Left—A Portion of the Scrap Dock as It Looked Before the Clean-up. Upper Right—The Same Area as it is Kept Now. Lower Left—The Other End of the Scrap Dock, Showing the Reclamation Plant and Gantry Crane. Lower Right—The Interior of the Blacksmith Shop

The Boston & Albany is a road with only 404 miles of line and two divisions, one embracing a centrally located locomotive shop at West Springfield, Mass., and the line west to Albany, and the other division embracing the mileage from Springfield east to and within the city of Boston. Its traffic, however, both freight and passenger, is dense, as indicated by gross earnings of $32,140,494 in 1925, requiring 25 miles of four track, 50 miles of three track and 125 miles of double track railroad on its main line from Boston to Albany. But notwithstanding its traffic density, there was no distinct stores department on this property until 1917, prior to which each department kept its own stock of supplies. Except for scrap handling purposes, moreover, the company had made no investments of consequence in stores facilities and there was little promise of anything substantial in the way of expenditures for this in the future. Also, stores facilities, not having been extended to meet growing demands of the past, were inadequate. The interest in the work of this department, therefore, lies in a large measure in what has been done under the circumstances.

Some of the storehouses were equipped with stock books but these were kept indifferently, which led to the installation of a new system throughout. Material for outside points was being delivered irregularly. To offset this, supply train service was inaugurated. Motor trucks and tractors with trailers were purchased to take care of the delivery of material from storehouses to users at central points and shops. A gantry crane at the scrap dock was extended 225 ft., increasing the capacity of the scrap dock 50 per cent. All stores of building and bridge materials which were located along the line were concentrated at Worcester. The same was done with the track material, which was concentrated at Springfield. A blacksmith shop with four forges was also erected at West Springfield for the repair of track tools, hand cars, push cars, etc., accumulated from the exchange of tools on the supply train. Since 1917, with new casting platforms, a switch timber yard, hoisting cranes, extensions to storehouses and replacements of the old storehouse bins with modern steel shelving, the store department facilities have been rendered adequate for the road's requirements for some time to come.

Different Stores for Different Material

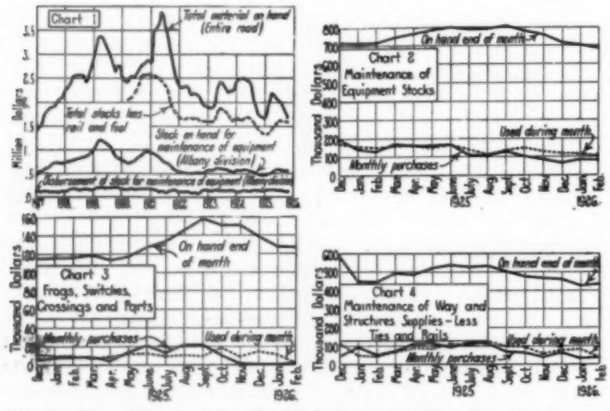
The Boston & Albany has not attempted to concentrate all of its material at one central point, but has divided the

stocks at different points, placing such stocks under qualified men with assistants, making experts of these men in their respective jurisdictions. Thus, the signal storehouse is located at Boston, the coach and freight car repair store at Allston, the bridge and building store at Worcester, the track and stationery stores at Springfield and the main locomotive store and scrap dock at West Springfield. This arrangement proved especially satisfactory during periods of labor shortage, as it was found that there was never a time when labor shortage or labor difficulties prevailed at all of the stores at the same time. These buildings and also their grounds are clean and free from confusion. White paint has been used generously, both inside and outside, and close attention to the orderly arrangement of material is in evidence.

A Statement of the Condition of Supplies

Material by classes	Purchases 1925 less freight charges	Per cent disbursed to total available*	Months' supply on hand*
Frogs, switches, crossings and parts	126,665	7.1	13.1
Track fastenings	247,882	18.5	4.4
Track tools	41,477	14.7	5.8
Interlocking and signal material	138,514	13.1	6.6
Telegraph and telephone material	5,500	6.8	13.5
Brick, cement, roofing, etc.	55,738	17.2	4.8
Lumber for bridges, buildings, etc.	129,440	10.0	9.0
Switch ties	33,370	23.0	3.8
Cross ties	182,088	18.6	4.4
Rail, except scrap	489,134	16.7	5.0
Fuel and water station material	7,764	6.1	15.2
Portable roadway equipment and parts	49,632	49.5	1.1
Chemical for timber treatment	1,023	7.6	12.2
Total—Maint. of W. and S.	1,623,173	15.2	5.6
Bolts, nuts, washers, etc.	38,994	11.2	8.0
Springs	10,731	9.3	9.7
Flues	6,294	9.1	10.0
Tubing and metals	9,714	14.5	5.9
Bar iron and steel	111,430	16.2	5.2
Plate and sheet iron and steel	16,385	17.2	4.8
Locomotive forgings	13,308	13.2	6.6
Car forgings	34,673	22.1	3.5
Locomotive castings, iron and steel	148,102	13.7	6.3
Car castings, iron and steel	228,006	24.5	3.1
Brass castings and journal bearings	198,823	25.4	2.9
Air brake material	54,238	16.8	5.0
Locomotive appliances	122,588	20.6	3.9
Passenger car trimmings	59,411	21.8	3.6
Electrical material for locomotives	27,232	23.0	3.4
Shop fuel	28,362	50.5	1.0
Wheels, tires and axles	192,760	17.4	4.7
Locomotive and car lumber	68,306	10.4	8.6
Machinery and machine tools	53,456	33.2	2.0
Total—Maintenance of equipment	1,516,750	19.7	4.1
Train and station supplies	95,161	24.2	3.1
Oil house material	134,171	31.6	2.2
Fuel for locomotives	3,325,735	57.0	0.8
Commissary supplies	370,305	62.0	0.6
Total—Conducting transportation	4,204,444	53.2	0.9
Iron and steel pipe	18,585	15.8	5.3
Pipe fittings	24,080	11.8	7.5
Electrical material	24,744	32.2	2.1
Hardware	57,908	20.4	3.8
Rubber and leather goods	46,877	20.1	4.0
Glass, drugs and chemicals	131,056	26.8	2.7
Stationery and printing	166,107	58.2	0.7
Total—Common to all departments	476,933	34.3	1.9
Grand total	7,821,319	28.0	2.5

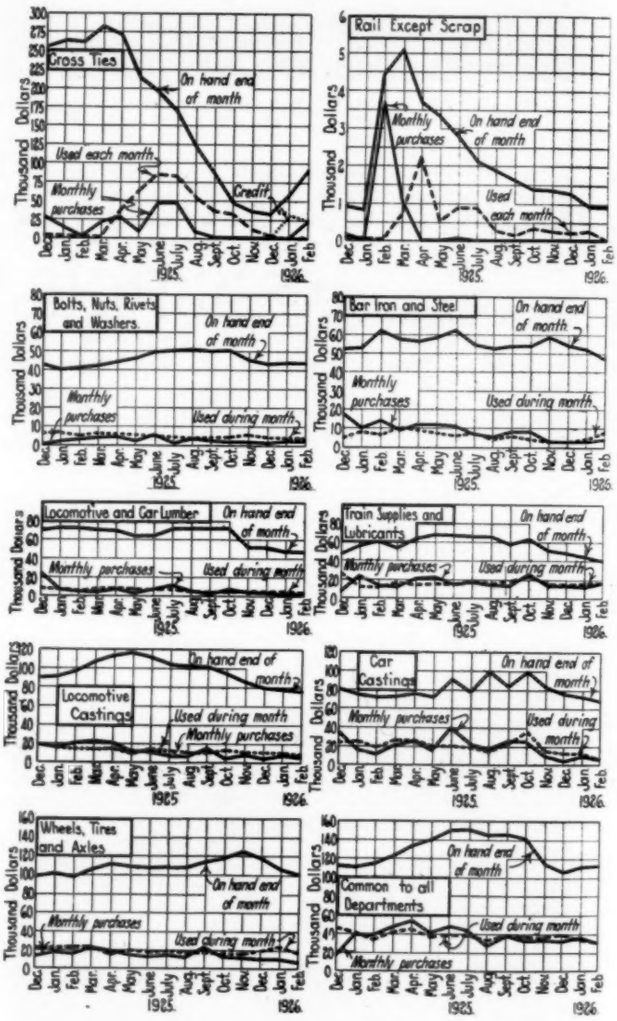
*Average value during 14 months from Jan. 1925, to Feb. 1926, inclusive.



Charts Showing the Trend of Material Stocks, Purchases, and Disbursement Over Several Months

Steel Shelving Installed

During the past two years, every storehouse, even the small stores at outlying engine terminals and car points, has been overhauled and the old wooden bins torn out and replaced with steel shelving. This work was begun at West Springfield and was soon carried to all points. Aside from its fire resistant feature, this shelving is adapted to the wide variety of uses and conditions it is called upon to meet. Thus it is found in single self-supporting wall racks as in the smaller storerooms, or in double racks in the large rooms. Being a unit type of construction, it is assembled in short lengths, or in continuous sections down the length of the storeroom. The bolt holes in upright panels for supporting the shelving allow either flat or tilted shelves, while bolt holes in shelving allow the installation of secondary partitions. The back panels of racks are attached or omitted as the length of the material on shelves or considerations of lighting demand. The side partitions or panels may be removed so as to permit the use of shelves as a rack for the storing of conduit, copper tubing, etc., while rearrangements of the steel panels form counters and shipping tables. Finally, shelves of one height or width for materials today are quickly raised or



Other Charts of Supplies Used, Purchased and Carried

lowered, or rendered narrower or broader to meet the new conditions of stock tomorrow, giving the storeroom a business-like as well as a distinctly presentable appearance. The transformation in the appearance of the storerooms is illustrated in the pictures of the stock room in the engine terminal at West Springfield.

What happened at the scrap pile is another story which has a bearing upon the comparative conditions and appearances of the property from a material and supply standpoint. To get it, we must go back to 1917 when the

The Interior of the Main Storehouse at West Springfield, Mass., After the Installation of Steel Shelving

present organization was created. At that time, the company had recently built a scrap dock and reclamation plant at West Springfield. This facility was composed of a strip of ground with through tracks on either side, the area between the tracks being 80 ft. wide and 400 ft. long. During the next year this length was increased to 625 ft. The reclamation plant was built at one end of this area and consisted of a rectangular frame building with platforms. This building was equipped with various machines for reclaiming material, such as a bolt threader, a nut tapper, a power hammer, etc.; and a five-ton gantry crane served both the reclamation and the scrap area.

While this facility was one of the most modern in the country at the time, interrupted operations over a protracted period due to war conditions and labor shortage had led to congestion. The entire dock became one pile of scrap into which had been dumped incoming material so that cars might be released for other service. To add to the disorder, classification considerations had been practically forgotten with the result that tires, sheet iron, pipe, couplers and all other material were mixed into a seemingly inextricable mass. There was an aggregate of 9,000 tons of scrap in this area at one time. A comparison between the conditions as they are now maintained and that which existed in 1917 is suggested by the accompanying illustrations. During 1925, 25,000 tons of miscellaneous scrap was sold from this dock.

An adjunct to the scrap dock is the blacksmith shop, previously referred to, where the repairs to all track tools, hand and push cars and similar reclamation work is done.

Many of the facilities in this blacksmith shop are home made, but the concentration here of work which formerly

STORE DEPARTMENT MACHINERY

Blacksmith Shop

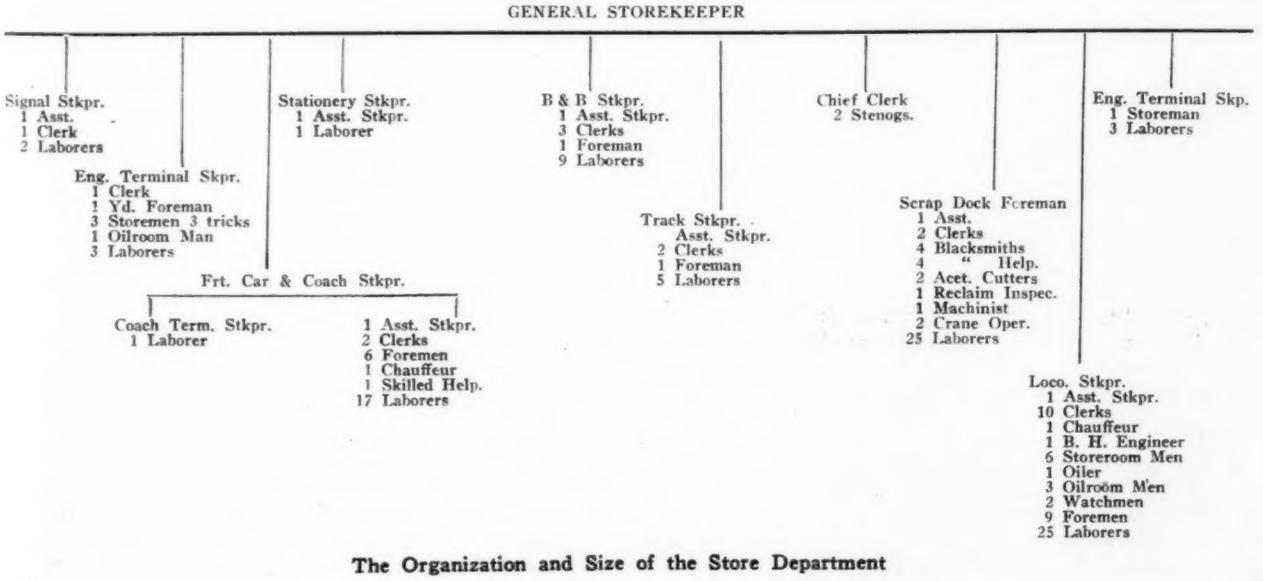
4 Forges—motor drive fan blast.
1 Oil furnace—own manufacture.
1 Oil furnace—own manufacture.
1 Bull dozer—air operated—own manufacture.
1 Power hammer—air-motor driven.
Power hammer—reconstructed air drill.
1 Drill press—motor driven.
1 Brake beam table—own manufacture.
1 Portable grinder—motor driven.
1 Platform scale—portable.

Reclamation Plant

1 Magnetic separator for brass.
1 Belt driven brass screen—own manufacture—screening brass chips.
1 Bolt cutter—triple head—motor driven.
1 Nut tapper—6 spindle—belt drive.
1 Drill press—belt drive.
1 Bolt shear—belt drive.
1 Nut rumbler—motor drive—own manufacture.
1 Forging hammer—belt drive.
1 Grindstone—motor drive—own manufacture.
1 Sheet metal shear air operated cylinder—own manufacture.
1 Nut sorting table—double deck—own manufacture.
1 Washer sorting table—own manufacture.
1 Platform scale.
1 Lead melting furnace—own manufacture.
1 Elevating truck.

Scrap Yard

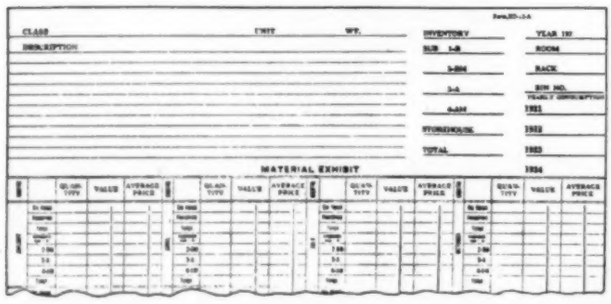
1 Gantry crane—5-ton capacity.
1 Alligator shear—motor drive—2-in. material.
4 Oxygen-acetylene cutting outfits—portable.



The Organization and Size of the Store Department

was done all over the road, has resulted in large economies. For instance, through the use of an oil furnace, and an air-operated hammer with a special die, the output of repaired chisels has been increased 300 per cent with the same number of men.

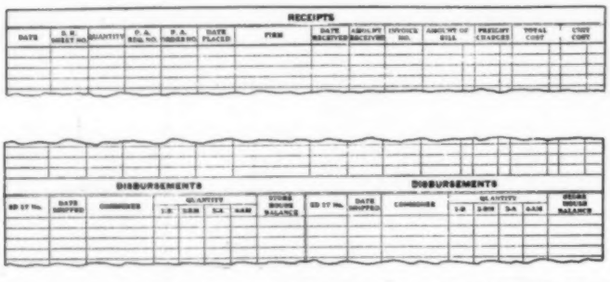
Another adjunct to the scrap yard and supervised by the scrap foreman is the switch timber yard where all switch timber is received, sorted, piled and disbursed to section men as required. This is also true of frogs and switches, which are located at this point because of the crane facilities, switching service and available cars. The



Portion of Stock Ledger Card for Track and B & B Material—Front

extent of operations in these plants as well as the resourcefulness displayed in living up to the possibilities of a store department on a road of this size, are suggested by the following list of equipment employed, much of which has been improvised.

Distribution of stock to outside users is made in three ways, by supply cars, by motor trucks, and by supply train. The supply train consists of 10 baggage cars, one dining and sleeping car, and two coaches equipped with proper shelving for the handling of miscellaneous station supplies, stationery, etc. The stationery is wrapped in bundles at the stationery store. This train supplies material to the section foremen, signal maintainers, car inspectors, station agents, tower men, yard men, pumpers and bridge and building forces. Section tools of all kinds are exchanged, tool for tool, which includes all the tools used



Portion of Stock Ledger Card for Track and B & B Material —Back Side

such as picks, claw bars, grinders, track jacks, track dollies, hand cars, push cars, etc. These old tools are brought into the blacksmith shop at the West Springfield scrap dock where those worth repairing are repaired and returned to stock for another exchange. A large saving has been made in the handling of tools in this way. There are 14 men and a foreman accompanying this train which is on the road seven days a month, covering 200 miles of territory within that time. The exact cost of the upkeep of the train and the handling of material is kept, and from $16,000 to $20,000 worth of material is disbursed monthly. The handling of material in this way gives the outside men regular delivery, keeps the material from freight houses and from baggage cars and reduces the loss by theft and breakage.

Index Cards for Line Stocks

One of the interesting points about the track and the bridge and building stocks is that these stocks are handled on what is known as a stock ledger card, replacing the stock book as used in the other stores. Each card is given a number covering a certain article, one card per article, and this card bears the same number yearly. All information pertaining to this article is found on this card from which the storekeeper orders his material. It shows at any time the balance in the storehouse and the balance on the line, in terms of both quantities and value. In this way, the storekeeper has before him the quantity on the

Inside the Stock Room at the Springfield Engine Terminal Before and After the Installation of Steel Shelving

line and if in his opinion the men outside are ordering too much material, his card gives him the necessary information with which to request a transfer of material from one foreman to another, which is done regularly. Supervision over line stock is most important in keeping maintenance of way stocks moving and it has assisted this road greatly in the reduction of these balances.

Stock Reduced 40 Per Cent

In the final analysis, white paint and daylight bins and organization of man power and methods have a place in railway storekeeping only as they contribute directly or indirectly to the promotion of the objects of the department in its relation to the transportation machine. As one of these objects is that of protecting the property from the expense of carrying more material than is essential to its uninterrupted and economical operations, it is in-

teresting to observe the trend in the value of stock carried in recent years. For this purpose reference is made to Chart 1, which is a reproduction, in condensed form, of a chart kept constantly before the general storekeeper and which covers all stocks, excepting fuel. A statement is also reproduced showing a comparison of material balances at the high point on May 1, 1921, when the total stock was $4,488,812, as against the low point of March 1, 1925, when the stock had been reduced to $1,643,170, or a reduction of $2,845,642.

COMPARISON OF MATERIAL BALANCES

Stocks	High Point May 1, 1921	Low Point March 1, 1926	Difference
M of W.	$2,383,945	$782,582	—$1,601,363
M of E.	1,339,968	599,689	—740,279
Signal	104,846	89,585	—15,261
Stationery	Not in balance	9,000	+9,000
Coal	637,196	122,463	—514,733
Commissary	22,857	30,072	+7,215
Ice	Not in balance	9,779	+9,779
Total	$4,488,812	$1,643,170	—$2,845,642

While many features enter into the size of a railroad material balance and the temptations are too great frequently to call decreases the accomplishment of the department charged with the custody of the material, it cannot be doubted that the store department of the Boston & Albany has been instrumental in producing the trend above shown.

The additional charts show the actual relationships over the period between the monthly stock on hand, monthly purchases and the material used for each of the classes or groups of material which involve the largest investments. The particularly interesting feature of the charts is the position of the use and purchase curves which show an unusual harmony between supply and demand. There is no reason to expect, in view of the harmony between use and purchase disclosed, that this road's supply department will not succeed with reference to some of these groups of material in carrying out its aim of still further reducing the amount of stock being carried on hand from month to month. It is the thought of this road that the new steel shelving, now that it has been entirely installed, will prove of substantial aid in this direction.

Chicago Shippers and Freight Claim Agents Meet

"THE railroads are carrying the commerce of the nation at a charge of but 4 per cent of its value and the losses are but 3.6 cents of each $100 worth of property transported," according to Fred W. Sargent, president of the Chicago & North Western, in a paper read by F. H. Cady, general solicitor, before a joint meeting of the Chicago Shippers' Conference Association and freight claim officers of the railroads. The meeting, which was called to bring about a better understanding of freight claim matters between the shippers and the carriers, was attended by 200 representatives. R. W. Campbell, general traffic manager of the Butler Paper Corporation, in an address stated that during the past five years freight claim expenditures by the railroads have been reduced from $120,000,000 to $40,000,000 or a saving to industry of $80,000,000. This enormous reduction, he said, was due largely to improved methods of distribution and a better understanding between the industrial traffic managers and the carriers of the best scheme of routing, packing and handling freight.

J. W. Bingham, traffic manager of the Corn Products Refining Company, in an address on Claims Growing Out of Improper Packing and Bracing of Carload Freight, stated that the freight claim agent is not in a position to say whether the shipment is properly loaded, stowed or braced. The traffic manager, he said, would not admit that his company was employing improper methods. He advocated the free transportation of dunnage as a means of eliminating rough handling and reducing claims in general. In support of this statement, he cited as an example the dunnage required for the shipment of commodities in sacks. In these shipments lumber is required in the doorway of the car and in many cases shippers omit the lumber, mainly because dunnage charges are made. It is felt that since this is the doorway of the car it should be furnished by the carrier.

J. H. Beek, executive secretary of the National Industrial Traffic League, spoke on the Clean Bill of Lading When Shippers Weigh, Load and Count, Including Shortages Under Original Seals. He analyzed Section 21 of Bill S91, calling for a clean bill of lading, stating that the bill will be passed. He said that if the carriers attempt to discontinue the practice of giving a clean bill of lading they will help pass the bill. In view of the fact that some carriers are now giving a clean bill of lading and some follow the practice at a few points on their line, he felt that it was entirely fair that the practice be made universal.

W. E. Butterbaugh, director of education of the traffic department of the LaSalle Extension University, spoke upon concealed loss and damage claims, giving special attention to those phases of the subject which demand most attention. H. R. Park, traffic manager of the Chicago Live Stock Exchange, spoke upon the correct measure of legal liability and defined the origin or destination value. R. J. Wallace, traffic manager of the Jaques Manufacturing Company, spoke upon expediting the payment of claims by proper supporting papers. G. B. Ingersoll, freight agent of the Wabash, addressed the meeting on the inspection of carload freight at destination when consigned, "Shipper's Order, Notify." W. D. Beck, district manager of the Car Service Division, American Railway Association, spoke upon the desirability of loading empty equipment to home roads.

An abstract of Mr. Sargent's paper follows.

A penny saved is a penny earned, which really finds its truest application in this meeting for if out of each dollar earned, three cents is spent for loss and damage claims, as in the year 1920, three cents is lost to the railroad company as truly as though the earnings were reduced from one dollar to 97 cents. If this loss can be reduced to one cent for each dollar earned we have truly saved two cents in expenditure, and it is just as valuable to the railroad company as if we had increased the earnings by an equal amount, and this in round numbers approximates what has been accomplished. I am endeavoring to say that the efforts of claim agents toward reducing the loss to freight in transit constitutes a productive enterprise.

The value of the freight in transit at this present moment is estimated to be one billion dollars. The freight charges on this will approximate 45 million dollars and the losses running at the same rate as the year 1925 will be $364,000. The amount of freight handled during the year 1925 will approximate 100 times the amount of freight in transit at this present moment and this represents the task of the railroads today in handling the nation's commerce and making delivery of it at destination in good order in the quickest and least expensive manner. For each $100 in property value of freight transported in 1925 the freight charges amounted to approximately $4.50 and the loss and damage to 3.6 cents. This compares with 12 cents in 1920. The losses are 0.81 per cent of the amount of the freight charges, while the freight charges are but 4½ per cent of the value of the freight carried. Therefore the losses are but 0.036 per cent of the value of the freight traffic handled. It will be seen that the losses compared with the value of the property handled are relatively small.

However, eternal vigilance is necessary for the safe conduct of business, for each shipment presents a risk many times greater than the freight charges indicate. The railroads are carrying the commerce of the nation at a charge of but 4 per cent of its value and the losses are but 3.6 cents of each $100 worth of property transported.

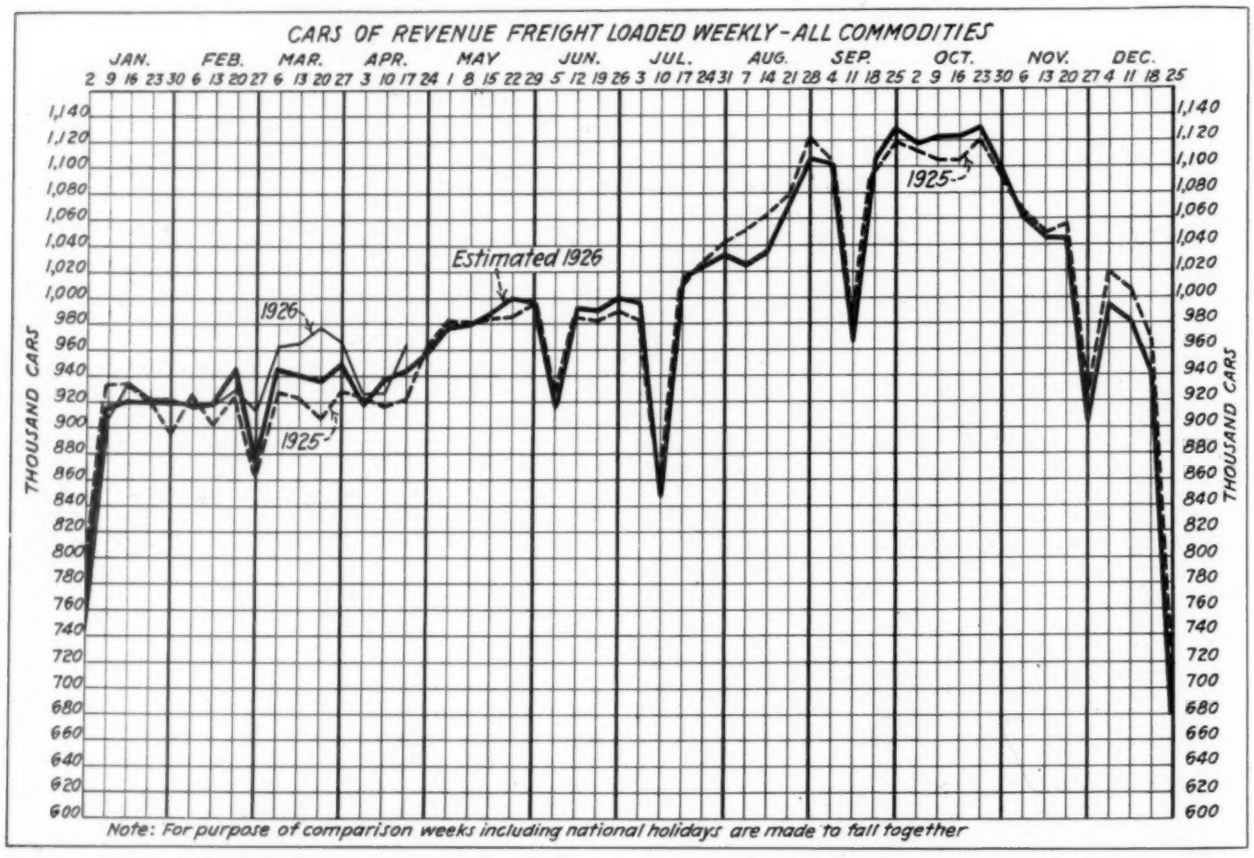
Freight Car Loading Passes Million Mark

WASHINGTON, D. C.

REVENUE freight car loading in the week ended May 15 amounted to 1,030,162 cars. This was not only the first week this year to show loading in excess of a million cars but the earliest week in any year to show loading of a million cars. As compared with the corresponding week of last year this was an increase of 44,283 cars, and as compared with 1924 there was an increase of 116,961 cars. Increases as compared with last year were shown in all districts except the Northwestern, where the ore loading was slightly less than last year, and in all classes of commodities except forest products and ore. The summary, as compiled by the Car Service Division of the American Railway Association is given in the table at the bottom of the first column.

The freight car surplus, for the first week in May averaged 270,385 cars, including 105,108 coal cars and 120,530 box cars. The Canadian roads for the same week had a surplus of 22,170 cars, including 19,600 box cars.

The freight car surplus for the period May 8 to 15 averaged 259,699 cars, including 90,295 coal cars and 123,453 box cars.


CARS OF REVENUE FREIGHT LOADED WEEKLY - ALL COMMODITIES
JAN. FEB. MAR. APR. MAY JUN. JUL. AUG. SEP. OCT. NOV. DEC.
THOUSAND CARS
1926
1925
Estimated 1926
Note: For purpose of comparison weeks including national holidays are made to fall together

The Car Service Division Estimates of 1926 Car Loadings Compared with Car Loadings in 1925 and in 1926 to Date

REVENUE FREIGHT CAR LOADING, WEEK ENDED SATURDAY, MAY 15, 1926.

Districts:	1926	1925	1924
Eastern	252,030	237,670	220,631
Allegheny	211,181	201,654	186,723
Pocahontas	56,390	49,894	37,729
Southern	147,531	141,089	131,215
Northwestern	153,001	154,186	141,157
Central Western	134,639	129,048	135,061
Southwestern	75,390	72,338	60,685
Total Western Districts	363,030	355,572	336,903
Total all roads	1,030,162	985,879	913,201
Commodities:			
Grain and grain products	39,736	35,531	37,165
Live stock	26,457	26,419	30,024
Coal	167,673	156,732	135,650
Coke	11,808	9,676	9,069
Forest products	75,799	75,808	74,281
Ore	54,499	63,609	55,383
Mdse. L. C. L.	267,883	259,445	247,334
Miscellaneous	386,307	358,659	324,295
May 8	995,527	983,034	908,203
May 1	995,641	984,073	913,550
April 24	973,304	961,186	878,387
April 17	964,935	923,844	876,916
Cumulative total, 20 weeks	18,803,765	18,462,225	17,821,195

Car Loading in Canada

Revenue car loadings at stations in Canada for the week ended May 15 totalled 63,414 cars, an increase of over 6,000 cars over the previous week. Grain loading jumped 2,600 cars in the western division and in the eastern division 2,077 cars. Other commodities also showed increases. Compared with the same week last year the increase was 13,392 cars.

	Total for Canada			Cumulative totals to date	
Commodities	May 15, 1926	May 8, 1926	May 16, 1925	1926	1925
Grain and grain products	11,177	6,499	5,009	130,174	118,850
Live stock	1,830	1,992	2,125	38,842	42,428
Coal	4,797	4,373	1,915	83,735	75,443
Coke	382	301	184	8,438	5,586
Lumber	3,653	3,493	4,048	63,657	60,980
Pulpwood	1,651	1,918	1,462	64,150	63,642
Pulp and paper	2,446	2,489	2,088	49,004	40,685
Other forest products	2,794	3,135	2,916	66,114	58,688
Ore	2,021	1,468	1,257	27,606	22,725
Merchandise, L. C. L.	17,182	17,078	15,996	295,818	282,143
Miscellaneous	15,481	14,622	13,022	228,457	205,838
Total cars loaded	63,414	57,368	50,022	1,055,995	977,008
Total cars received from connections	38,065	37,695	32,250	712,042	638,661

Argument in Western Rate Case

Utilities commissioners oppose any relief—Separate southwestern group urged

WASHINGTON, D. C.

ORAL argument before the Interstate Commerce Commission and the state commissions that are sitting with it in the western rate case, which was begun on May 19, was expected to continue throughout this week.

Following the presentation of the railroad case by R. N. Van Doren, vice-president of the Chicago & Northwestern, and Kenneth F. Burgess, general solicitor of the Chicago, Burlington & Quincy, William Church Osborn, representing a committee of security owners of the railroads in the northwestern region, told the commission that the principal difficulty of the western roads lies in the "unfair and unreasonably low" rate structure in Western Trunk Line territory and that since the commission's decision reducing rates in 1922 the northwestern roads have earned only 3.54 per cent on their tentative valuations, as compared with 4.99 per cent for the Central Western roads and 5.44 per cent for the Southwestern roads.

The opposition to the application of the roads was begun on May 20 by John E. Benton, general solicitor of the National Association of Railway and Utilities Commissioners, who argued in support of the motion of the western state commissions that the commission dismiss the application on the ground that such a general advance was prohibited by the Hoch-Smith resolution, which, he said, was intended to discriminate "so far as that might be lawful" in favor of agricultural products. He contended that the western roads as a whole do not need an increase in rates, that on the showing of the first three months of 1926 they will approximate a fair return for this year, and he criticised them for not having worked out greater economies in the passenger service instead of trying to "saddle a loss from that service on to the shippers." Criticising the railroad claims as to value, Mr. Benton said that regardless of reproduction costs the carriers' properties cannot be given any value "which exceeds the amount upon which a return can be earned under just and reasonable rates," instead of asking for increased rates, he said, the carriers ought to be helping the farmers to restore their purchasing power which is necessary to increase railroad traffic.

Referring to the Potter plan, he said that the opposition to it was an indication that the banking interests control both the strong and the weak railroads and that they do not want it, and that after Charles Evans Hughes had been employed to present it "something happened" and "half-apologetic comment on it is extracted from the distinguished counsel hired to present it only by questions from the bench."

John E. Benton Opposes Rate Relief

Mr. Benton also said in part:

"It is shown that existing rates are very high. It is shown that on various commodities further increased burdens can not be borne. Particularly as to the products of agriculture, it is shown that the industry is suffering from a severe and long-continued depression, which limits the ability of the industry to bear increased rate burdens, and limits the value of the service of transportation to the shipper.

"It is shown that sand and gravel rates, for example, are high, and yield large earnings to the carriers. It is shown that increased rates will prevent free movement. It is shown that in various cases reductions have been made voluntarily and under commission orders to enable movement to take place as to various and important commodities. It is shown that under existing conditions rate increases would be unreasonable.

"There is a great amount of evidence showing highly discriminatory rate situations affecting large areas and numerous commodities, and negativing the possibility of any finding that a uniform advance would be reasonable. These instances are so many, and affect so large a part of the rates proposed to be advanced, that they can not be treated as exceptions to a general unreasonably low level shown by typical evidence. And there is no evidence of a critical emergency compelling an immediate advance even at the cost of a measure of injustice to shippers whose rates would be unreasonably affected.

"Furthermore, there is the proof that any shortage of revenue results not from inadequacy of the freight rates which are supposed to be advanced, but from the passenger business, as to which no advances are proposed.

"It is perfectly apparent that if the carriers will let well enough alone they will soon be receiving the 15a return even on the values which they claim. But they seem plagued by an evil genius, which drives them to attempt their own undoing. The prosperity of the whole Western district, including the carriers, depends more than anything else upon agriculture. The depression in agriculture since 1920 has adversely affected the earnings of the carriers. This has been not so much in what they have received from the products of agriculture, as on other commodities the movement of which has been affected by the agricultural depression.

"Depressed agricultural prices have caused a lack of purchasing power on the part of that large portion of the population of the West engaged in agriculture, and that lack of purchasing power has reacted on other lines of economic activity. So far as railroad traffic is concerned a period of depression has far less effect to diminish the movement of agriculture products than of other classes of traffic. Agricultural products move mainly in the last half of the year. The months of the first half of the year are the lean ones for the railroads. There is no dispute but that there has recently been some improvement in the agricultural situation. We think we are far from a normal condition, but improvement has been made and is in progress. It has unquestionably resulted in restoring to the agricultural West a purchasing power that has for a number of years lain dormant.

"This has resulted in an improvement in carriers' earnings. If the agricultural recovery can continue, there will be a continuous improvement in the volume of traffic most helpful to the carriers."

Separate Southwestern Group Recommended

Arguments were also presented by Paul A. Walker, special counsel of the Oklahoma commission; J. H. Henderson, counsel of the Iowa commission; M. J. Healy, of the Kansas commission; Neill Garrett, of the Iowa commission; E. H. Hogueland, of the Kansas commission; Hugh La Master, of Nebraska; H. M. Slater, of Illinois; S. E. Naugle, of Colorado, and D. L. Kelley of South Dakota.

Creation of a separate southwestern rate group, so as to

exempt that section from a rate advance, was urged by R. C. Fulbright, of Houston, Texas, Paul A. Walker and Ernest May, assistant general attorney of Texas. "The roads who sought this rate increase were not primarily southern lines," said Mr. Fulbright. "The southwestern roads are merely riding upon the coat-tails of the northwestern and Central Western roads in the hope that they may share in a general increase in rates, although the southwestern roads are prosperous. The roads which radiate from St. Louis, Kansas City, and Memphis to the southwest have a peculiar traffic, they have a separate group of freight tariffs and they have been often considered as a separate group by this commission. They have been earning substantially the standard return or more for several years on any standard of value you set up. The commission should hestitate to establish a rate base on any speculative basis. If the carriers are asking for an increased return they must put on a more tangible evidence of value than their property investment accounts. The best evidence of valuation that is in this record is an exhibit based on the commission's underlying valuation reports and its tentative valuations of one-half of the lines of the southwest brought down to date to include additions and betterments. On this basis the southwestern roads in 1923 earned 6.51 per cent, in 1924 they earned 8 per cent and in 1925 their earnings were better than in 1924. The carriers say these are 1914 values and that we ought to add 82 per cent to represent present values but they are using as a basis their property investment accounts, which are absolutely unreliable. It is axiomatic that cost is not value and the book investment figures of the carriers are not even an accurate statement of the cost."

H. A. Scandrett, vice-president of the Union Pacific, asked Mr. Fulbright if he understood that the carriers were claiming as value as much as their cost of reproduction. Mr. Fulbright replied that he understood they were claiming their property investment figures were fairly representative of value.

"The carriers' contention," said Mr. Scandrett, "is that to the extent that cost of reproduction is an element of value, it must be present cost of reproduction, not 1914 cost of reproduction."

E. C. Carman, assistant general attorney of Minnesota, argued against any segregation of the northwestern roads from the western roads as a whole.

Joseph N. Teal, representing the West Coast Lumbermen's Association, argued that the application of the railroads should be dismissed.

The livestock cases were taken up on May 24, S. H. Cowan appearing for the American National Livestock Association, R. A. Zwemer for the Sioux City Livestock Exchange and Missouri river markets, and H. D. Driscoll for southwestern livestock shippers. On the general complaint filed by the American National Livestock Association, Examiner Disque of the commission has recommended that the present rates are low, while the railroads have asked for a 20 per cent increase.

Railroad Rebuttal Argument

Rebuttal argument on behalf of the railroads was begun on May 25 by Kenneth F. Burgess, general solicitor of the Chicago, Burlington & Quincy. He handed to the commissioners a table which he said was taken from statistics compiled by the Department of Agriculture, and introduced in this case by the state commissions. Showing that for the year 1924-1925 agriculture in the United States had earned a return of 4.6 per cent on the current value of the total capital invested in agriculture, whereas the railroad exhibits had shown a return of only 4.12 per cent on their property investment for 1925. Making an allowance for rental value of farm houses at $200 a year, Mr. Burgess said, the rate of return on total capital invested in agriculture would become 6.76 per cent. He added that agriculture in the West had had a greater recovery than in other parts of the country. "When it comes to agricultural prices," he said, "the only low spot now is corn and the farmers that are feding corn to cattle are getting good prices."

Referring particularly to the demand for a reduction in live stock rates, Mr. Burgess said that the entire freight bill on livestock is only 4½ per cent of the total receipts of the livestock shippers and that a 20 per cent advance in rate would amount to only 0.75 per cent of the farm price on cattle, 0.54 per cent of the farm price on hogs, and 0.38 per cent of the farm price of lambs.

The livestock traffic, he said, receives a more costly service and yields a lower revenue than any other traffic. "These livestock shippers are demanding an expensive and expedited service but they don't want to pay for that kind of service. They have money for everything else except that which is necessary for the marketing of their products—railroad service. If livestock traffic is going to pay its way it must take a greater increase in freight rates than other traffic because the economies that have enabled the railroads to meet the increased cost of operation as to other kinds of traffic cannot be applied to livestock because of the inherent nature of the traffic. The average net tonnage of a cattle train is only about half of that of a dead-freight train but we cannot hold cattle trains for heavier loading and make the market in time to avoid damage claims."

Arguments on behalf of shippers against the increase in rates were heard on May 26.

Representative Hudspeth, of Texas, who said he appeared as a cattle-raiser and not as a Congressman, urged a blanket reduction in livestock freight rates. He challenged any "cowologist," he said, to show that any cattle raiser in Texas had earned more than 3¼ per cent in the last five years and said that the cattle growers are leaving their ranches by the thousands.

R. C. Fulbright, representing the Southern Pine Association, opposed an increase in rates on lumber. Among other arguments he said the product of the members of his association were sold largely to the farmers. As he also represented the Texas Farm Bureau Federation, Commissioner Aitchison asked if he admitted that the farmers are able to buy lumber. Mr. Fulbright replied that they cannot afford any more expensive construction material and that the southwestern cotton farmer is not able to buy, because he gets less for his cotton than the cost of production.

Color-Position-Light Signals on the D. T. & I.

THE Detroit, Toledo & Ironton has in use on a short section of its electrified line near Detroit, Mich., a number of color-position-light signals, like those originated and developed on the Baltimore & Ohio and heretofore described in the *Railway Age*;* and H. S. Carlton of the signal department of the D. T. & I., gives a brief description of the signals in a recent number of the D. T. & I. Railroad News.

The diagram of aspects shown herewith, taken from Mr. Carlton's paper, shows meanings or indications in a few respects different from those adopted by the Baltimore & Ohio. The first four aspects are those of dwarf signals and the other five those of high signals.

*Described in the *Railway Age*, February 21, 1925, page 456; also described, with colored diagrams and additional illustrations, in *Railway Signaling* for July, 1925.

Here, as on the Baltimore & Ohio, it will be noted that there are really but four fundamental aspects, the additional ones being modifications of these. The principal difference in principle is that on the Baltimore & Ohio each of the five aspects designed to permit a train to move is given in two ways, one for the "main route" and the other for the "restricted route" or, in other words, one for high speed and one for half speed or restricted speed. All of the high speed aspects include a single white light above the main disk, and all of the "restricted" indications include a single white light below the main disk.

The distinctive aspect in the Baltimore & Ohio scheme is that shown in Numbers 5 and 10, two green lights,

	Day & Night ASPECTS	COLOR	
1		Red	Stop.
2		Yellow	Proceed with caution.
3		Lunar White	Proceed at restricted speed. Tracks lined for diverging route.
4		Green	Proceed.
5	○	Red / Out	Stop and Stay.
6	●	Red / Yellow	Stop, then proceed prepared to stop short of train or obstruction. Permissive signal.
7	●	Yellow / Yellow or Out	Proceed prepared to stop at next signal. Approach signal.
8	●	Lunar White / Yellow or Out	Proceed at restricted speed. Tracks lined for diverging route.
9	●	Green / Yellow or Out	Proceed.

Signal Aspects, Detroit, Toledo & Ironton

one above the other, with a white light above or below. This is a cautionary signal, *two blocks* in the rear of a stop signal. The D. T. & I., not requiring this provision for high speed, does not use this aspect.

Aspects 3 and 8, which on the Baltimore & Ohio are used for permissive block signaling, correspond to 3 and 8 on the D. T. & I., used to indicate "diverging route."

On the D. T. & I. the signals are supported on the inside of the concrete columns of the arches that carry the trolley wire for electric propulsion. The artificial background is made 40 in. in diameter and is fixed on a bracket 22 ft. above the top of the rail. Dwarf signals have an artificial background of only 18 in. diameter and thus may be used between tracks where there is but little clearance. The marker lights are yellow and are fixed 6 ft. below the bottom of the high signals.

Tie Renewals Reduced to 107 Per Mile on the Santa Fe

THE savings accruing to the Santa Fe through its consistent adherence to the policy of carefully selecting its ties, applying appropriate treatment and protecting the ties in the track against mechanical destruction, is evidenced again in the annual tie renewal statistics of that road for 1925 which show that the average number of tie renewals per mile of track on the system has been further reduced to 107. As indicated in the accompanying table, which is a summary of the tie renewal reports since 1898, this is the smallest average number of ties renewed per mile in a long record of generally decreasing requirements. In considering this figure, it should be borne in mind that it is an average of the tie renewals per mile of all tracks now in operation on the Santa Fe system, including a relatively large mileage constructed within the past few years on which the renewals are as yet light. For the purpose of the Santa Fe, however, in comparing the annual requirements on the system, this figure and the others compiled on this basis are substantially correct and readily comparable with the figures

Record of Tie Renewals on the Atchison, Topeka & Santa Fe System

Years	Total miles	Total ties inserted for renewals	Total ties inserted per mile of track	Average No. of ties inserted per mile of track for five year period
1898	8,185	2,751,849	336	...
1899	9,028	2,246,250	249	...
1900	8,804	1,687,537	192	229
1901	9,368	1,557,880	166	210
1902	9,557	1,954,823	204	215
1903	9,768	2,352,502	241	228
1904	10,237	2,770,306	271	234
1905	10,885	2,788,378	256	251
1906	11,637	2,291,997	197	263
1907	11,694	3,364,921	288	267
1908	12,169	3,666,798	301	272
1909	12,601	3,690,633	293	286
1910	13,379	3,758,984	281	273
1911	13,889	3,738,854	269	251
1912	14,488	3,192,585	220	228
1913	14,766	2,850,823	193	213
1914	15,293	2,728,629	178	200
1915	15,400	3,191,823	207	187
1916	15,517	3,118,941	201	180
1917	15,661	2,483,651	158	173
1918	15,931	2,456,203	154	164
1919	16,087	2,302,952	143	153
1920	16,899	2,753,673	163	153
1921	16,912	2,514,325	149	148
1922	17,005	2,693,905	158	142
1923	17,346	2,229,201	128	131
1924	17,709	2,046,054	115	...
1925	18,054	1,936,497	107	...

for previous years, since the same policy of computation has been followed in the past.

Indicating probably with greater accuracy the general trend of renewals on the Santa Fe are the figures in the last column of the table which represent the average number of tie renewals per mile over periods of five years and thereby eliminate the effect of minor fluctuations in tie renewals from year to year. These figures show conclusively the consistent reduction made in the average tie renewals per mile since 1909, when they amounted to 286 ties, to 1923, when the average of the renewals over the five-year period was only 131 ties, or a reduction of about 54 per cent. It is further noted by reference to the first three columns in the table, that whereas 2,751,849 ties were renewed in 8,185 miles of track in 1898, and 3,690,633 ties replaced in 12,601 miles of track in 1909, only 1,936,497 were required in the 18,054 miles of track of the Santa Fe system in 1925.

The figure of 107 ties per mile, which represents the average of tie renewals for all classes of tracks on the Santa Fe, is derived from the following average tie renewal requirements of the various classes of tracks which make up the system: main line—main track, 145 ties to

the mile; main line—side track, 61 ties; branch line—main track, 91 ties; and branch line—side track, 67 ties to the mile.

The average number of renewals per mile on all classes of tracks on the Gulf lines of the system (the lines south of Purcell, Okla.) was 176 ties, on the Coast lines (west of Albuquerque, N. M.) 152 ties, on the Western lines (between Newton, Kan., and Albuquerque) 93 ties, and on the Eastern lines (east of Newton) only 53. The average number of renewals on the Gulf lines for the past five years was 157, on the Coast lines 189, and on the Eastern and Western lines, 103. The fluctuation in the average number of the renewals over the system and in particular the low requirements of the Eastern and Western lines to a considerable extent reflects the effect of the more favorable climatic conditions prevailing over those lines and to a much larger extent the results derived on these lines where the practice of treating ties has been of longest standing and where practically all of the ties have been subjected to some kind of treatment.

Single-Seat Day Coaches Placed in Service by B. & O.

THE Baltimore & Ohio has recently placed a number of day coaches in its passenger service between Washington, D. C., and New York equipped with individual seats somewhat resembling in appearance the de luxe type bus seats. These coaches were originally equipped with the standard double seats but were equipped with the individual type seats, as shown in the illustration, when these cars were being

Interior View of One of the Coaches with Individual Seats Used in Service Between New York and Washington on the Baltimore & Ohio

repaired at the Mount Clare coach shop. The springs are covered with burlap, duck and then a heavy layer of hair padding. The covering cloth is a harmonious combination of dark and light brown of even stripped velour. The backs of the seats are upholstered in practically the same way and are so constructed as to fit the body and afford a maximum of comfort. The seats are built in two sections and are so arranged that they can be turned if necessary, for a reverse movement of the car. It has not been found practical, however, to turn them individually toward the window at the will of the occupant because of possible interference with seats immediately in front or behind.

The interior appearance of the car has also been changed to harmonize with the new scheme of furnishings and decoration. The window shades are made of a fabric of harmonizing color. A runner of thick carpet of similar shade and design, laid on a rubber pad, extends the length of the car. The washrooms have also been entirely repainted in white enamel.

Labor Bill Signed by President

WASHINGTON, D. C.

PRESIDENT COOLIDGE issued the following statement on signing the railroad labor bill, generally referred to as the Watson-Parker bill, on May 20:

After some months of earnest negotiation between the representatives of a majority of the railway executives and the railway employees, they adopted a plan of labor relationship designed to provide a method of self-government within the industry. This plan has been enacted into law by Congress in substitution of the present Railway Labor Board. The plan provides for a series of joint adjustment boards for purposes of collective bargaining upon wages and conditions of labor, with the right of these boards to refer such matters as they may determine to arbitration. In case of failure to find a solution by collective bargaining or such arbitration the plan provides for the intervention of a permanent board of mediation which is to be appointed by the President of the United States. In failure of the mediation board to effect a settlement of any important dispute, the plan further provides for the appointment of an emergency commission by the President to determine the facts and to report upon the rights and wrongs of the dispute. These are to protect the public and insure regular operation of railroad service.

The plan therefore comprises the essential principles of the Railway Labor Board created by the Transportation Act of 1920, except that it throws a far larger measure of responsibility for amicable relations upon the industry itself. The proposal has been criticized on the ground that it does not give adequate protection to the public from collusion between the railway managers and their employees to establish wages which would be reflected in unjust rates upon the shippers. I do not understand that this act greatly, if at all, increases the power which the roads and their employees have to do the same thing under the present law, if they were so disposed. The answer to this criticism is that increases in railway rates must be approved by the Interstate Commerce Commission, and this commission is required by law to exercise its power to prescribe just and reasonable rates under honest, efficient and economical management. Moreover, this act expressly stipulates that the powers of the Interstate Commerce Commission are unimpaired to fix rates in accordance with the present law.

It does appear to me that there is involved in all of these proposals a much wider issue, and one of first public importance. This wider aspect is that we should give every encouragement to industry to create within itself such a relationship and such machinery of adjustment between its employers and employees as will give the public continuous and efficient service, and to accomplish these relations within itself without the intervention of the government. Nor does this imply that the railways have by undertaking this self-government in the smallest fashion relieved themselves of their responsibility to the public

at large, but rather they have increased their responsibility by virtue of the self-government which this act imposes upon them.

I have come to the conclusion that the plan in this act should be tried. I should have preferred some more definite declaration for the possible protection of the public, but should the operation of the plan demonstrate such protection is needed it can easily be supplied by a future Congress. It is not now possible to foretell such need, and the fact that the roads and their employees are committed to the necessity of making this law a success, goes far to assure that it will be a success.

President Coolidge on May 21 designed L. M. Parker, secretary of the Railroad Labor Board, as custodian of all papers and properties of the board pending creation of the new Board of Mediation.

Poultry Train Draws Large Crowd

A TOTAL of 206,205 people passed through the poultry special operated by the Chicago, Burlington & Quincy through 90 towns in Nebraska and eight in Kansas from March 1 to April 8. This is an average of over 2,000 per town. The train which was electrically lighted, was made up of nine cars. The first, a dynamo baggage car, contained chicken feed, bulletins and supplies. The second was a coach which carried ex-

Object Lesson in Well Designed Poultry Yard

hibits portraying the necessity of sanitation in successful poultry raising. The third was a standard live poultry transit car with exhibits in the stateroom. The fourth was a flat car on which were mounted two standard Nebraska poultry houses in actual operation, one containing baby chicks and the other growing pullets. The fifth car, a coach, contained live poultry exhibits to demonstrate the value of good breeding stock. The sixth car showed the value of producing only high quality poultry products for the market, the value of grading eggs, correct packing, eggs in cold storage and an exhibit of dressed poultry showing market classification. The seventh car was a 12-section Pullman, the eighth a cafe car and the ninth a business car.

Each of the towns was visited by a representative of the operating and of the agricultural department of the Burlington about a month prior to the visit of the train and local committees were organized to make arrangements for local programs, nearly 800 business men in the 98 towns visited participating in the work of these committees. Many towns raised from $200 to $500 to advertise the train, to put on local programs, to furnish refreshments and to buy prizes for contests.

The local committees also arranged special features. These included poultry shows, egg shows (in which 1,729 dozen eggs were entered), poultry poster contests in the schools, essay contests, band concerts, glee clubs, parades, chicken-chasing contests, special sales days, poultry window displays and a red headed girls' contest. In many towns the boys in the manual training department of the high schools built poultry houses from lumber furnished by lumber dealers. These were sold at public auction, the proceeds above the cost of materials going to the

Governor Adam McMullen Speaks from Flat Car Containing Two Colony Brooder Houses Built by Students of University of Nebraska

boys. At Curtis an egg-throwing contest was staged, while at Campbell 5,000 eggs were fried for egg sandwiches. The merchants conducted contests of many kinds and local editors devoted a large amount of space to the poultry train. The M. M. Johnson broadcasting station at Clay Center broadcasted the train three times each day, giving the schedule and interesting items regarding the trip. When the train pulled into Clay Center the station broadcasted the whistle of the train. The state

Display Erected at Nelson to Attract Interest in Poultry Special

university took moving pictures of the entire train which were shown at many points in the state.

Attendance at the night meetings ran about 2,000. The train visited three towns daily, starting its program at 9 o'clock in the morning and closing the train at 11 at night. Speakers were sent to the schools and the school children taken through the train. While the school children were being instructed, lectures were given to

farmers at town halls. These lectures were limited by the capacity of the halls and a total of 46,193 people attended. Talks on poultry were given to 30,000 school children.

In many counties over 50 per cent of the population was reached. Campbell, Neb., with a population of 550 furnished a crowd of 4,101 people at the train. In many cases entire families drove 40 to 50 miles to see the train, and in one case a woman brought her family 99 miles. In most counties the rural schools closed for the day, some teachers bringing their entire schools 15 or 20 miles to see the exhibits.

More than 1,000,000 pieces of poultry literature were distributed from the train. These included 75,000 Burlington Poultry Special leaflets, circulars of the Omaha Livestock Exchange on tuberculosis, literature by the Nebraska Poultry, Butter and Egg Shippers' Association, a leaflet on marketing poultry products and the University bulletins on the care and feeding of baby chicks. In addition to the bulletins distributed from the train, the Agricultural College has received requests up to date for 25,811 additional bulletins on poultry subjects.

Although the purpose of the train was not to increase the production of poultry products, but to show more economical methods of production in order to increase the profit per hen, the train accomplished both purposes. The breeders who furnished exhibition birds for the train sold out their entire stocks of breeding stock and hatching eggs. All the commercial hatcheries in the state are sold out for several weeks in advance and are far behind on orders. A hatchery at St. Paul, Neb., will put out over 1,000,000 baby chicks this spring, which is the largest business since it started the hatchery. The hatchery at Crete was able to trace the course of the train over the state by the increase in orders received from the towns visited. The feed mill at this town has unfilled orders for poultry totaling 25 carloads as a result of the poultry special.

Meeting of Association of Railway Claim Agents

THE thirty-seventh annual convention of the Association of Railway Claim Agents was held at Los Angeles, Cal., on May 18 to 20, with an attendance of 250 delegates from all parts of the United States and also from Porto Rico, Canada and Australia. The convention was called to order by President W. H. D'Arcy, general claim agent of the Canadian Pacific. The principal problem considered by the convention related to the increasing number of accidents at grade crossings resulting from the augmented use of automobiles. "The railroads," Mr. D'Arcy said, "have brought their system of safeguards to a point where accidents confined solely to the operation of their trains have been materially reduced. They have no way of controlling the observance of safeguards on the part of the public, however, and the recklessness and indifference to danger at grade crossings of a large number of car drivers are causing accidents to multiply at an alarming rate. The only remedy I can see is continued propaganda in the hope of educating the public in the matter of using more care. The roads have been carrying on a campaign of this kind for a long time and will have to keep on doing so. In some states laws have been enacted requiring the driver of a car to stop before crossing a railroad."

Oliver G. Browne, claims attorney of the New York Central, in an address on the modern trend of compensation legislation, condemned the practice. "There is a point," he said, "where laws providing compensation for employees in accident cases must stop, and we have reached that point now. If the modern trend in this kind of legislation is not checked, we will presently find ourselves in the same predicament as the British with their dole system. Nothing is so demoralizing in industry as the knowledge on the part of the workers that provision will be made for them without any worry on their part."

In a paper on the evolution of the railways and the railway claim departments, Gelmer Kuiper, general claim agent of the Chicago Great Western, dwelt on the magnitude of the railroad transportation industry today. "There are 250,000 miles of railroads in the United States or nearly half of all the railway mileage in the world," he said. "The total amount represented by railway investment aggregates more than $15,000,000,000, which is almost a sixth of the wealth of the country. The number of persons engaged in railroad work represents about a tenth of the man-power of the United States. American railways surpass those of Europe in speed, quality of service, and safety. For many years we have been led to believe that travel over an American railway is not so safe as railway travel in Europe. The records show that only one passenger loses his life in a railway accident in this country for every 242,220,000 miles traveled, while in England every 124,904,000 miles of railway travel shows a death."

B. C. Wilson, general claim agent of the Union Pacific, addressed the meeting on the advisability of establishing a national bureau for the recording of fraudulent claimants and the advantages to be derived therefrom. D. H. Kimball, claims attorney of the Great Northern, spoke upon co-operation between claim departments and railroad brotherhoods in the settlement and handling of personal injury claims of employees. Smith R. Brittingham, assistant general solicitor of the Seaboard Air Line, presented a paper on the common law and claim agency. George F. Collette, regional claim agent of the Erie, presented the topic, "What Can be Done to Preserve the Validity of Releases Taken Under the Following Circumstances: (a) An injured person still confined to a hospital? (b) One so old that his mental qualifications might fairly be questioned? (c) A moron? (d) Where the consideration is but nominal and subject to the claim that it was grossly inadequate?" James S. Palmer, general claim agent of the Chicago, Rock Island & Pacific, spoke on eliminating causes of automobile accidents. Frank Wenter, Jr., general claim agent of the Chicago & North Western, presented a discussion on the best available means of accident prevention.

Robert J. Irwin, general claim agent of the Atchison, Topeka & Santa Fe, was elected president. Vice-presidents elected were: Oliver G. Browne, claims attorney of the New York Central; C. S. Williston, claims attorney of the Pullman Company; and James H. Amos, claims attorney of the Missouri Pacific.

New Orleans was selected as the place for the annual convention of the association in 1927.

THE NEW TRAIN of the Atchison, Topeka & Santa Fe which will be put into operation between Chicago and Los Angeles on a 63-hour schedule in October will be called the "Chief." The selection of the name is in keeping with the policy of the company in naming its trains after something indicative of the southwest through which the main line of the road operates. Particular effort has been made to preserve the history of the southwest, particularly Indian lore. Other trains bear the names of Navajo, Missionary, and The Scout.

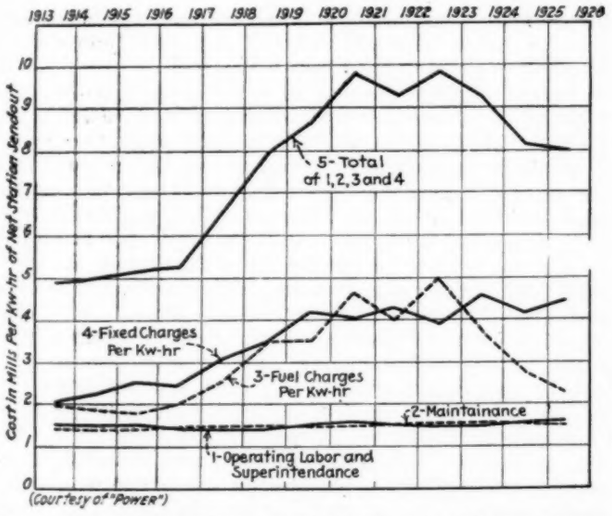
Steam Versus Electric Motive Power*

A comprehensive and practicable outline of the operating factors and economies which influence the selection of motive power

By H. S. Peck

Supervisor Locomotive and Power Plant Operation, Chicago, Milwaukee & St. Paul

WHEREAS the modern locomotive, day in and day out, will show a boiler efficiency of 75 per cent to 80 per cent (many less than this but very few more); the most modern steam generating station operates at an efficiency of slightly less than 93 per cent. What this means in fuel consumption can readily be appreciated. However, this gain in efficiency is not attained without effort and expense and this must be taken into serious account before we can count the net saving. Where such high efficiencies are possible a very heavy investment charge must be carried and which may result in a net loss rather than a net gain. Fig. 1 shows graphically the trend in the final cost of power in large steam-electric generating stations from 1913 to the middle of 1925. It is pertinent to note that since the middle of 1919 the cost of fuel entering into the final cost of power generated, after showing an increase to the middle of 1922, shows a pronounced decline until it is but slightly higher than in 1913. This is due in part, of course, to the decline in the price of coal, but the more efficient use of that fuel has also had a very marked effect. Labor, including superintendence and maintenance have increased but slightly during this period. The fixed charges incident to increased investment, however, have increased steadily until in 1925 the cost due to this element was 2¼ times as great as the 1913 figure. In spite of this, however, the total of all items entering into the final cost is but 1.6 times the 1913 cost. The net result has therefore been a gain. It is also interesting to note that a large part of the improvement in efficiency has occurred since the beginning of 1924. During that period the heat units required per kilowatt hour has dropped from 18,000 to 14,000. Some further improvement may be expected but this will necessarily involve perfecting the mercury-vapor-steam cycle, which will add still further to the fixed charge feature.


1913 1914 1915 1916 1917 1918 1919 1920 1921 1922 1923 1924 1925 1926
Cost in Mills Per Kw-hr of Net Station Send-out
0 1 2 3 4 5 6 7 8 9 10
5- Total of 1,2,3 and 4
4-Fixed Charges Per Kw-hr
3-Fuel Charges Per Kw-hr
2-Maintainance
1-Operating Labor and Superintendance
(Courtesy of "Power")

Trend of Operating Costs and Fixed Charges of Steam Power Stations Rated at 60,000 kw. and Higher

The steam generating plant has been dealt with here at considerable length because it is certain to play a very prominent part in future electrification projects, and the cost of electric power generated in that type of station will be a very important phase of the problem.

Hydro-Electric Plants

The other type of power supply station is that in which the energy contained in volume and fall of water itself is harnessed to the generating equipment. The efficiency here may or may not play a major part, depending upon the conditions surrounding each individual case. In one sense of the word, assuming an ample supply of water power, it is unimportant that all available energy be utilized. However, an inefficient plant may result in higher cost than should occur. An erroneous impression, and a quite general one, exists in many quarters, that the cost of electric power generated in a hydro-electric plant is very low. As a matter of fact, such power may be more costly than where generated in a well-designed, efficiently operated and favorably located steam plant. This is due to the very heavy investment required in providing a dam for storage capacity, transmission lines, etc. The maintenance on the dam is likely to be high also. More often than not a hydro-electric plant must be constructed in an inaccessible place which is certain to be reflected in investment charges and which of course must enter into the final cost of the power produced.

Transmission and Conversion of Electric Power

Assuming that power is available either from a steam or hydro plant, it next becomes necessary to transmit it to the point where required, namely, the locomotive. A transmission line is involved in either case and irrespective of the location of the source of supply. In order to keep the investment costs as low as possible, consistent with the losses in transmission, a relatively high voltage alternating current is universally employed. A transmission loss of from 15 per cent to 20 per cent is generally tolerated as representing the balancing point between fixed charges and wasted energy.

The high voltage of transmission generally must be reduced to a value that can be used on the locomotive. Transformers are required for this in which there is a further loss in efficiency of from 2 per cent to 5 per cent. If a direct current system is utilized a further conversion becomes necessary with a loss which may approximate 10 per cent. These transforming and conversion stations of course are placed at selected intervals so that a further means is required in order to deliver the energy continuously to the locomotive at whatever point it may be at any instant. The distribution system utilized for this purpose

* Abstract of a paper presented at the eighteenth annual meeting of the International Railway Fuel Association held at Chicago, May 11 to 14, 1926.

results in a further loss of power, the amount varying with the type of construction used and distance between stations.

It is evident from the above that of the energy produced at the generating station a considerable portion is dissipated before it reaches the locomotive where it can be converted to useful work. This serves to indicate the importance of the cost of power at its source. Such losses are unavoidable, hence tend to overcome some of the advantage of the large, efficient steam or hydro-electric plant over the steam locomotive.

Up to this point we have to compare on the one side, the generating station, transmission system, transforming and converting equipment (if required) and distribution; and on the other side the coal or oil supply, cars and power required for its transportation and distribution, coaling stations for serving the locomotives, water supply and storage tanks, tenders for serving the locomotive with fuel and water while on the road.

We have now come to the locomotive itself and we here find a marked difference. It is common knowledge that even the most modern steam locomotive does not convert more than 8 per cent of the energy contained in the fuel into power at the rim of its driving wheels. In the case of the electric locomotive it is not unusual to find that 35 per cent or 40 per cent of the energy available in the fuel or water power at the generating station is converted into actual pulling power. In some cases the percentage may be materially higher than this.

Operating Factors

The first difference to be noted between steam and electrical operation is evident the moment the engineer moves the controller and puts power on the traction motors. The electric locomotive is supplied with a uniform turning torque throughout the revolution of the wheel. This makes far smoother starting, is less conducive to slipping of wheels and in experienced hands permits the train to move off very smoothly. It is also a characteristic of the electric locomotive that a much greater tractive effort is available for starting and for short periods of heavy demand than can be safely developed continuously. The steam locomotive equipped with a booster approaches this condition but does not possess the range of the electric locomotive. A comparison of these characteristics is shown graphically in figure No. 2. Such a characteristic is a very important one to the operating costs because, whereas a locomotive may be able to pull a given tonnage after it is started, it may be necessary to provide a helper under steam operation, in order to get the train under way. This of course adds to the operating costs of transporting that train. A further and perhaps more important result of this characteristic is due to the fact that this reserve power is always available at an instant's notice and therefore permits heavier trains to be handled where a rolling profile exists or where stops are likely to occur in unfavorable locations en route.

This is in effect what is meant when an electric locomotive is said to have a certain tractive effort or horse power rating continuously, a greater value for these for one hour and still greater maximum. The rating of an electric locomotive is entirely a question of heating, up to the point where the wheels slip. By the liberal use of sand a very high tractive force may be developed for the few minutes necessary in getting a train started. It may be double the value of which the locomotive is capable under continuous operation. If demanded for more than a few minutes, however, damage is certain to occur and of a very expensive nature. The locomotive is not hampered by limited boiler capacity, as is steam locomotive, when a demand of such a nature is made upon it because there will seldom be a case when there is not ample amount of power back of the locomotive.

As will be seen by referring to Fig. 2, as the locomotive speeds up, the tractive power drops off much the same as does the steam locomotive. There is still a large reserve that may be drawn upon for varying periods of time, in fact is a function of the time, and is governed entirely by the temperature rise within the electrical apparatus.

It is the tractive power characteristics as referred to above that make possible the heavier tonnage per train with an electric locomotive of a given rating than with a steam locomotive of like rating. It is also evident that one of the greatest advantages of electric power is the simplicity with which very great concentration of power is possible under the control of one engine crew. This concentration is of course possible at any point and at any instant, diminishing only to a small extent from the transforming or converting station to a point midway between adjacent stations.

In this same connection the electric locomotive possesses a very desirable characteristic, particularly in cold climate. As mentioned above, the rating of the electric locomotive is governed by temperature rise. Of course the lower the atmospheric temperature the more favorable it is to the locomotive. Thus increased power becomes available when the effect of the elements makes it of material importance, in direct contrast to the steam locomotive.

Another feature peculiar to electro-motive power, but approached by internal combustion type locomotives, is its high availability for service. Where the steam locomotive is available for service one-third to one-half of the time, the electric is available approximately 85 per cent of the time. This is, of course, largely due to less attention being required at terminals. It is generally not necessary to give the electric locomotive more than minor attention until 5,000 miles has been made. It is entirely practical to run such locomotives that distance without detaching from the train. Furthermore, the electric locomotive is ready after the few minutes that may be required for supplies and changing crews to return to its starting point with another train. It does not even have to be run over the turntable, since generally provision is made for double-end operation. This feature is, of course, reflected in the number of locomotives required on the line to handle the traffic offered and to that extent affects the overhead charges, turning expense and other incidental costs.

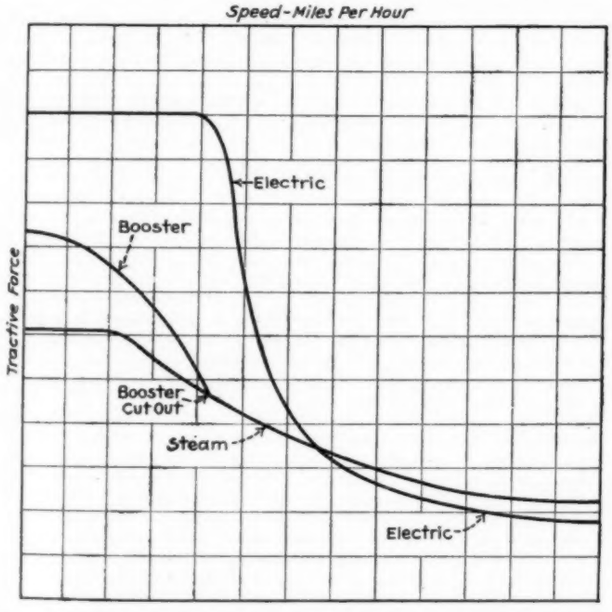
Where the profile is favorable as regards heavy grades an economic advantage of considerable moment accrues to electrical operation, due to the possibilities incident to so-called regenerative braking. Instead of dissipating the stored-up energy of a descending train in heating and wear of brake shoes and wheels, this energy is converted to electrical energy and either used to pull other trains up the grade or else is returned to the power system and credit received therefrom. The money saved in power and in reduced wear of brake shoes and wheels represents an appreciable item. Then, too, there is less wear and tear of equipment from smoother handling of train and greater safety through having two means of retarding the train movement, since the air brake must be retained in any event for bringing the train to a full stop and holding it when stopped on a grade or elsewhere.

Electrical operation permits the abandonment of coal and water facilities and thus saves the expense of their operation and maintenance. It is customary, however, to maintain a percentage of such facilities at strategic points as a protective measure in case of extreme emergency. Of course dispensing with the need of boiler water eliminates any problems incidental to the quality of water supply and which is an item of considerable moment in territories where good water is unknown.

Whether non-revenue tonnage of company coal is eliminated or not, depends upon the means of power generation. If a steam plant is a source and it is not feasible or possible to locate that plant at or near the mine, a certain tonnage will still have to be handled. The quantity, however, will be materially less. This affects not only the direct operating costs of transporting such coal but will be reflected in the amount of equipment engaged in non-revenue service and the maintenance costs of such equipment. When it is considered that in some cases one coal car is required for each three miles of track for the sole purpose of moving locomotive coal, an idea of the relative importance of this feature is gain.

By virtue of the reserve power inherent to the electric locomotive, together with its greater reliability, trains may be moved more expeditiously over the road because dispatching to closer margin is possible. This results in decreased expense for overtime of crews and, all else being equal, permits a more satisfactory service to patrons of the road.

Thus far consideration has been given to those factors that are favorable to operation by electric power. In fact,



Speed-Tractive Force Curves of Steam and Electric Locomotives of Approximately Equal Horse Power Rating

there are but few strictly operating factors that are unfavorable to the electric locomotive. The principal one of these lies in the unfeasibility of storing electric locomotives when traffic does not require their use as is done with steam locomotives. It is of paramount importance that the insulation of electric equipment be maintained to a high degree of perfection. Where such equipment is not in regular use or stored in a warm, dry place, moisture will be taken up which will render the insulation ineffective even to the extent of putting the equipment out of service. The expense of providing a suitable place for storage is usually too great to permit any gain from that source and in consequence more units must be kept in service than are necessary to meet requirements. This simply means all locomotives must be kept ready for service and used every few days so that the windings, etc., will be kept dried out. Costs are increased in so doing but they are generally less than would be occasioned in providing storage facilities.

Balancing Capital Costs Against Operating Advantages and Economies

From a strictly operating standpoint, the situation is preponderently in favor of electrical operation. The subject, however, cannot be left without reference to the cost of providing the capital required in making electrical operation possible. The investment required for a generating station, transmission lines, transforming and converting equipment, distribution system and the locomotives themselves adds a heavy capital burden to the mileage of road involved. When the cost of carrying this burden can be absorbed without resulting in a net increase in operating expense will depend upon circumstances surrounding each individual case. Probably where traffic density is heavy and fairly uniform it will not be difficult to show a nice return on the investment, where traffic is light or seasonal, very careful consideration is necessary in determining the feasibility or desirability of electrification. It must not be overlooked that electric motive power is of special type and is therefore only adaptable to the particular section that is equipped to make its use possible. The total investment is actually confined to a certain specific territory and must be self-supporting within that territory if total success is to be accomplished.

It may be said that electrification of steam railways does result in fuel economy, to just the extent to which the fuel is used more efficiently plus the savings in standby losses that are unavoidable in the operation of a steam locomotive. In determining the relative efficiency, the comparison must be referred to the cost unit of the work at the driver run or at the drawbar, because we may save in quantity of fuel and through utilizing a cheaper grade of fuel, but in so doing other costs have been introduced that must be taken into consideration. It is therefore not the tons of coal or gallons of oil saved, but the dollars and cents saved in transporting a unit of revenue-bearing traffic a unit distance. In other words, a certain percentage of the saving in fuel cost on the locomotive must be used to offset fixed charges and to compensate for losses in transmission, distribution and utilization. No general statement of what fuel economy is possible can be made, but it can be said that electrification of steam railways is an important step in the conservation of our national resources, and this is particularly true where hydro-electric power supplants the steam locomotive.

Discussion

Sidney Withington (N. Y. N. H. & H.), in a prepared discussion, spoke very highly of the fairness with which Mr. Peck presented the case of electrification. He said that it sometimes appears that in an effort to show fuel economy some power companies may be going too far in capital expenditure. In the case of hydro-electric power, he called attention to the fact that the capital requirements for long distance transmission lines and the heavy operating and maintenance costs which they entail, when divided over a relatively small number of kilowatt hours transmitted, may be out of all proportion to the advantages of cheap production of power at the hydro-electric plants. This, he said, was also true with respect to mouth-of-mine steam plants.

In commenting on Mr. Peck's assumption of 35 or 40 per cent of efficiency in the case of electric traction, he said that this was high, but that even half of this amount represented a material fuel saving over the test figure of 8 per cent over-all thermal efficiency given for the steam locomotive.

Mr. Withington also expressed the opinion that the advantages of regenerative braking have been somewhat over-rated. All three examples of this practice in the

United States (the Chicago, Milwaukee & St. Paul; the Norfolk & Western, and the Virginian) are located in territories where power is exceptionally cheap. The kilowatt hours saved are, therefore, not relatively of great value. In many places abroad, he said, regenerative braking has been replaced by electro-rheostatic braking because of the simplification and increased flexibility of operation it makes possible. In this case instead of being returned to the line, the electrical energy resulting from the braking is dissipated in heat. Except that no power is regained, this practice is said to have all of the advantages of the full regenerative braking.

In stating that Mr. Peck's conclusions were most logical, Mr. Withington called attention to the fact that the biggest factor in the cost of electrification is the cost of the system for distributing the power along the right-of-way, this being dependent on the extent of the territory and independent of the volume of traffic. It is for this reason that the density of traffic is fundamentally such an important consideration in the case of any proposed electrification.

E. T. Howson (*Railway Age*) in commenting on Mr. Peck's paper called attention to what has been accomplished on several railroads in increased fuel economy through proper supervision of stationary power plants and outlying power using facilities such as pumping stations, through proper supervision and the expenditure of comparatively small sums for the replacement of steam with internal combustion engines or other improvements. He suggested that a further development in this direction could be made by the substitution of electric power purchased from public utility corporations in many cases, with a resulting improvement in cost to the railroad, as well as in fuel economy because of the high efficiency of large central power stations.

Decision on Complaint Against N. Y. C. Train Control

THE decision of the Interstate Commerce Commission on the complaint of the Sprague Safety Control and Signal Corporation against the New York Central, alleging faults in the General Railway Signal Company's automatic train stop, as installed on the New York Central, and charging illegal conduct on the part of the railroad company in making the contract, was briefly reported in the *Railway Age* of May 22, page 1404. Numerous hearings were held in Washington in December last. The case was reported in the *Railway Age* of December 5, page 1040; December 12, page 1106; December 26, page 1203; April 10, page 1025, and April 17, page 1090.

The decision covers six points: (1) Section 3, I. C. C. Act does not apply to carriers' purchases. (2) Automatic train control devices are subject to Section 26 of the law, not to the car service section. (3) The complaint that failure to include speed control is a violation of the I. C. C. requirements is not sustained. (4) Complaint that the method of braking is an impairment of the efficiency of the air brake system, and that the device is subject to false clear failures cannot be settled, or considered, until after demonstration of the device in operation. (5) The Clayton anti-trust act, Section 10, has not been violated. (6) The complaint is dismissed.

The opinion is by Division 1, Commissioners Esch, McManamy and Taylor. Under the fourth head it says, in part:

"The record shows that the device does not interfere with the application of the brakes by the engineman's brake valve; that is, under normal or clear conditions the engineman may apply and release his brakes in the usual manner. He may also forestall and control his train in the usual manner. The automatic application is made by one reduction of brake-pipe pressure to obtain a full service application. The reduction necessary to obtain a full service application under the usual conditions of train operation varies from 20 lbs. to 26 lbs. depending upon the initial pressure in the brake-pipe which, generally speaking, is 70 lbs. for freight trains and 90 lbs. for passenger trains. The usual method of applying the brakes to obtain a full service application consists of two, or more, successive reductions; a "split reduction," to avoid undue shocks to the train. The record shows that the device, as it is proposed to be installed will permit of an air-pressure reduction in excess of the amount required to give a full service reduction, because the releasing lever or button by which the engineman is enabled to stop the exhaust of air from the train-line, after the brakes have been applied automatically, is located at the back end of the tender. There is a possibility in this method of automatic brake application that the efficiency of the air-brake system may be impaired under certain conditions of train operation, particularly on grades, by too great a depletion of air-pressure. This is a matter, however, which only experience in actual operation will fully demonstrate. The application of the brakes by the automatic train-stop device is designed to occur only in cases where the engineman fails properly to forestall the automatic application and apply the brakes himself, so that the automatic application is intended to be the exception and not the rule. We cannot say, therefore, that the method of braking employed by this device actually impairs the efficiency of the air-brake system.

"The clearance between the face of the inductor and the under face of the receiver which is mounted upon the journal box of a tender truck axle is 1½ in. The Sprague Company contends that such small clearance is inadequate and that proper operative relation cannot be maintained between the roadway and train elements under all conditions as required. The question of whether the device as installed does or does not comply can be demonstrated only after it is in actual operation. . . . Complainant contends that the train-control equipment installed on tracks and locomotives shall not encroach upon the standard clearances established and approved for rolling stock and tracks. We do not agree with this view. Our requirements do not set up any standard clearances. Such clearances may be changed in connection with the installation of an automatic train-control device.

"We come now to the criticism of the device which deals with the possibilities of false-clear indications and the limitations of the device with respect to its capacity to be self betraying should such failure occur. . . . The track inductor is a U-shaped laminated core with a winding or choke coil on it from which wires lead to the contacts on the relay. The track element is not energized nor does it require any battery or other source of roadside energy. It is not a magnet but simply an inert piece of iron. The choke coil and its control wires constitute the control circuit used to put the inductor in a clear condition and allow trains to pass without being stopped. This control circuit does not require a battery or other source of roadside energy. When this circuit is open the inert element readily permits the passage through it of magnetic flux from a normally energized electro-magnet carried upon the train when the train-carried element passes over the track element. This creates a surge of magnetic flux in the receiver coils which, through certain controls, causes an application of the brakes unless the engineman forestalls such application. When the control circuit is closed it diminishes the effect which would otherwise be produced upon the train-carried elements to such an extent that the latter will not operate and the train will proceed without receiving a stop indication of any sort.

"It appears, therefore, that if for any reason the control circuit becomes closed from a short circuit or cross a clear indication will be given when the train-carried element passes over the inductor even though the signal is at stop. The device will, in other words, give a false clear indication. It is possible for this to be produced from a short circuit or cross in any part of the control circuit. It is not "self-betraying" except under certain conditions as follows: in normal operation when a train passes over a track element, the control circuit of which is open due to the signal being at stop, a whistle will sound in the engine cab when the engineman operates the forestalling switch; if the control circuit is closed, however, the whistle will not sound and the engineman will thus be made aware of the failure of the device to function as intended. It is obvious that the engineman will forestall only when he knows or has reason to believe, that the signal is at stop. If, thinking that the signal is clear when in fact it is at stop, he fails to forestall and the control circuit of the track inductor is closed because of a cross or short circuit, no action whatever will take place on the locomotive. To this extent the device is not "self-betraying."

"Occurrences of crosses or short circuits in any circuit are always possible. In some devices the possibilities of such troubles are more remote than in others, depending upon the fundamental design and upon construction. Our requirements recognize the possibilities of such occurrences in electric circuits and, therefore,

provide that "so far as possible" an automatic train-control system should operate to stop a train when short-circuits exist in the system. No hard and fast rule is laid down that, as a fundamental principle, a train-control system must be so designed that the device must operate to stop a train if for any reason whatsoever a cross or short circuit occurs in any one of the numerous circuits of the system. The requirements of our order mean that every reasonable precaution should be taken in constructing the device and installing it so as to guard against failure which might cause false clear indications. It cannot reasonably be said of any device that it will always function as intended, but the possibilities of failure may be greatly reduced by drawing upon the engineering knowledge gained from years of experience in protecting the integrity of electric circuits not only in automatic block signalling but also in the many other fields in which electric circuits are employed. In the device selected by the New York Central, it appears that if a cross or short circuit occurs in any part of the control circuit a false-clear failure may result. In other devices of the intermittent inductive type a similar result from a cross or short circuit in the control circuit of the track element will depend upon the particular place it occurs in that circuit. In other words the possibilities of a false clear failure from a cross in the control circuits of these other devices are more remote.

"The device in the instant case should be so constructed and installed as to provide adequate safeguards in accordance with the best engineering practice so that the integrity of the control circuits will be protected and the possibilities of false-clear failures will be reduced to a minimum. Inspection of the installation when completed will be made with this particularly in mind. At the present time no finding can be made that our requirements in the respects stated are or are not complied with."

Parker Consolidation Plan Approved by I. C. C.

WASHINGTON, D. C.

APPROVAL by the Interstate Commerce Commission of the Parker railroad consolidation bill, H. R. 11,212, is expressed in a report submitted to the House committee on interstate and foreign commerce, which opened hearings on the bill on May 24, by Commissioner Esch, on behalf of the legislative committee of the commission. The approval is subject to some detailed suggestions and comment, but the commission is understood to hope that it may pass and relieve the commission of the existing requirement of law that it prepare a complete plan of consolidation." The report has not been made public pending the appearance of a member of the commission to testify before the committee.

The Parker bill allows voluntary consolidations or unifications in other forms, subject to the approval of the commission, and provides that after seven years the commission shall report to Congress the progress made and its recommendations in the light of conditions then existing. It also provides for the necessary procedure and corporate powers to make consolidations effective. It is not regarded likely that the bill can be passed at this session of Congress, but it is apparently hoped that it can at least be given a status comparable to that of the Cummins bill, which has been reported to the Senate from the committee on interstate commerce but which contains many provisions not satisfactory either to the commission or to the railways.

Alfred P. Thom, general counsel of the Association of Railway Executives, and Dr. C. S. Duncan, an economist in his office, spoke before the committee on May 24. Mr. Thom said that the great need of legislation is to provide the necessary machinery and corporate powers to make consolidations effective, saying that the lack of such provisions is the practical difficulty of the present law, aside from the requirement that the commission promulgate a complete consolidation plan. He also said he had always regarded paragraph 2 of section 5 as an ad interim provision, for the time before proceedings could be had under the commission's complete plan, and that a good many persons are becoming very much alarmed at the extent to which the commission is permitting that paragraph to be used to permit unifications which they cannot see are very much different from consolidations. Both this bill and the Cummins bill, he said, seek to provide the powers and machinery by which an approved consolidation may go into effect and both provide that any plan must be approved by the commission as in the public interest and made subject to any terms or conditions it considers necessary, before it can be carried out.

Dr. Duncan discussed some of the economic aspects of consolidation, saying it can be assumed, in view of the expressions of Congress and Presidents Coolidge and Harding on the subject that it is now an established policy of the government.

Approval of the Parker bill was also expressed by Robert S. Lovett, chairman of the board of the Union Pacific system, on May 25. Judge Lovett said he took it for granted that it is the settled policy of the government to promote railway consolidations when approved by the commission but that further legislation, such as is embodied in the Parker bill, is necessary, because the present law contemplates consolidations only in the technical legal sense of that term and prohibits them until after the commission has promulgated a plan. Unless the law is changed, or until the commission has prepared a plan, one company cannot purchase another outright and the title to a system cannot be vested in a single corporation. Alsc the law must provide all powers necessary and appropriate for the corporations, if the Congressional policy is to be made effective, because some state laws make no provision for consolidation of companies they have chartered, while others make differing provisions and others absolutely prohibit consolidations, especially of parallel and competing lines. Unless Congress acts, he said, its policy will be ineffective in several great sections of the country and as to many great corporations. It is not sufficient merely to remove obstructions, Judge Lovett said; there must be affirmative legislation. Personally he would prefer federal incorporation, but with the necessary legislation the existing state corporations can be used, although the progress of consolidation must be slow if a railroad has to give up its own corporate existence and form an entirely new company.

"This bill gets away from technical consolidation," he said, "and provides for other methods of unification that may be approved by the commission. I strongly urge that the commission be relieved of the task of working out an arbitrary plan for the consolidation of all railroads; that authority be given, as in the pending bill, for railroads to work out voluntary consolidations; and that no compulsory or coercive policy be adopted, because it would only be an incentive to the weak lines to hold out for a large price. I believe that the extension and development of the railroad systems will prove to be greatly to the public benefit in many ways, resulting in improved service and efficiency and economy in various ways. It will also simplify existing systems and make it easier to finance their requirements. I believe, however, that the possibility of great savings in expenses has been greatly exaggerated. While consolidation will be beneficial it will not solve the railroad problem. That will be with us until the public realizes that the only possible way to obtain satisfactory railroad service is to treat railroads and railroad investments fairly."

On the subject of the acquisition of weak lines by stronger roads Judge Lovett said that generally the stocks of the dividend-paying roads are the ones held by the ordinary investor, while the stocks of the weaker roads are more often held by a few men who acquired them for

speculative purposes or who "got stuck with them," and that if a strong road should be required to take over a weak line that could not be made to pay, the money of the small investor would be taken to be turned over to speculators. He said he thought most stockholders would rather pay over to the government half of any excess income than to be forced to take over an unprofitable road that they did not want and that might jeopardize the earnings already being received. "I am sure that railroad executives and owners generally desire to co-operate with the government in this policy, whether they believe in it or not, providing there is no direct loss, but I do not think they will take over a road involving a direct loss unless they are forced to."

After Judge Lovett had expressed the opinion that it would not be attractive to the owners of the weaker lines "in their present frame of mind," to turn over their properties on a valuation based on earning power. Representative Hoch asked how this legislation would solve the problem of the weak lines. Judge Lovett said it would to some extent but that he did not know what would solve it if the owners of the weak lines are to be paid all they hope to get, unless the government is to take them over. When Mr. Hoch asked if the stronger roads had not resisted the recapture of excess earnings which were supposed to go to help the weak roads, Judge Lovett replied that a group of roads, including his own, had contested the constitutionality of the law but since the Supreme Court has sustained it there has been no opposition, although the whole question of whether there are any excess earnings is awaiting the completion of the commission's valuations and a determination by the Supreme Court as to what constitutes value. He expressed the opinion that in time there will be lines having very considerable excess earnings.

He said he thought that consolidations can be encouraged by opening the door and that the commission can attach conditions that will lead in time to an absorption of most, if not all, of the weak lines. However, he had never believed that a compulsory policy could be made effective and said that if it should ever become necessary it would be better to wait until that necessity arises, instead of trying to include the idea of compulsion, as in the Cummins bill, in the same bill that attempts to encourage voluntary consolidations.

Judge Lovett appeared before the committee again on May 26 and was questioned by several members of the committee at length as to the powers of Congress to authorize state corporations to do things which are *ultra vires* under their state charters or prohibited by state laws or constitutions, and also regarding the disposition of the weaker lines. He expressed the opinion that the stronger railroads would consider it "good business" to try to conform to public policy and co-operate with the Interstate Commerce Commission by taking over weaker roads on which the public is dependent for service, but emphasized that the roads to be acquired must not expect more than a fair price. He said that if it is finally settled that a railroad valuation is to be based on "real value" instead of on replacement cost, some of the difficulties regarding price might be removed, but he declared that it would be unreasonable to try to "equalize investments" in railroad companies by requiring the stockholders of the stronger companies to shoulder the losses of others. He said he thought it likely that in a few years there would be many roads "still left out" but that it would be time enough then to consider some form of compulsion, rather than to attempt to include compulsion in legislation at this time. He said he thought the provisions of the Parker bill would be satisfactory to most of the railway executives, but that so far as his roads are concerned he did not care whether it is passed or not. "It is merely necessary to make effective the policy of the legislation you passed six years ago," he said.

Judge Lovett said the problem of transportation service in some of the localities served by weak short lines is being solved to some extent by motor transportation.

Representative Shallenberger of Nebraska cited figures from a recent report of the Union Pacific showing a large increase in maintenance expenses as compared with the corresponding period of last year and asked if such expenditures could be considered "economical" or whether they were being made to avoid excess earnings. Judge Lovett said that the large expenditures are being made in the interest of economy under a policy of doing the work earlier in the year than last year, because the work can be done much more economically than if postponed until the time of heavy traffic, when the men spend a large part of their time at the side of the track "watching trains go by," and that the policy provides that the total maintenance expenditure for the year shall not exceed that of last year. He added that if the Interstate Commerce Commission finds what it considers excessive maintenance it has power not to allow the excess for the purpose of ascertaining the income subject to recapture.

Seventeenth Master Boiler Makers Convention Opens in Buffalo

THE seventeenth annual convention of the Master Boiler Makers' Association opened at the Hotel Statler, Buffalo, N. Y., Tuesday, May 25, at 10:30 a. m., with the president, T. F. Powers (C. & N. W.) in the chair. About 600 members, guests and supply men were in attendance at the opening session.

After the invocation, A. G. Buckley, convention manager of the Chamber of Commerce, welcomed the convention to the city in the absence of John J. Love, acting mayor of Buffalo. F. M. Barker, who is vice-president of the Chamber of Commerce and superintendent of the Lehigh Valley railroad, amplified Mr. Buckley's remarks about the attractiveness of Buffalo as a convention city and then as a railroad officer outlined the financial condition of the railroads. The improvements made in the physical conditions of the roads of the country for the past five years have had to be met by ever increasing bond issues, he said. The revenue derived from operation has not been adequate to bring up the standards to a higher level—this in spite of a greater degree of economy on the part of practically every division and department of the railroads. He stressed the importance of every member of this association as well as others in the employ of the railways to make known this condition to the public. Mr. Buckley said that savings in the shops are important but the establishment of fair rates that will allow the roads to maintain themselves is the only direction from which real relief may be expected.

Mr. Buckley was followed by Walter H. Flynn, superintendent of motive power of the New York Central, New York. In his remarks, Mr. Flynn gave great credit to the master boiler makers of the country for the manner in which with ever increasing problems of higher pressures, thicker plates, increasing weight and greater capacities of locomotives, they have overcome the difficulties. The way is open, he said, for members of the association to carry their work to a still higher point of efficiency and since the dependence of the public on the railroads

is greater than ever before from the standpoint of service and safety, the members of the association have a rare opportunity of meeting the confidence placed in them.

The president's annual address was next delivered by Mr. Powers. The remainder of the Tuesday morning session was devoted to the reports of the secretary and the treasurer and routine business.

The afternoon session was devoted to the discussion of papers on "Flue Sheets in Combustion Chambers," "Best Form and Arrangement of Lagging and Jacketing," and "Special Devices Developed for Shop Work."

A. R. Ayers, assistant general manager, N. Y. C. & St. L., spoke at the opening session, Wednesday. R. B. McCall, manager of the Schenectady plant of the American Locomotive Company, could not attend the convention, so A. F. Pitkin of the same company read his paper. The remaining addresses during the convention were by A. G. Pack, chief inspector, Bureau of Locomotive Inspection, Interstate Commerce Commission, and R. E. Woodruff, superintendent of the Erie, Buffalo.

The entire discussion on the second day was devoted to the subject of "Recommended Practices and Standards," which was practically all on the subject of permissible use of welding in locomotive boilers. Another report that proved to be of interest was on the subject of "Boiler Corrosion, Pitting and Grooving." Members of the water service committee of the A. R. E. A. were in attendance to express their views on this most important subject.

The final session on Friday, May 28, was taken up mainly by the election of officers for the coming year. The results will be published in a later issue of the *Railway Age*.

How Grading Material and Ballast Change in Volume*

By H. E. Hale

Engineer Eastern Group, Presidents' Conference Committee, New York

THERE has recently been assembled by the authority of the Presidents' Conference Committee, a large amount of data showing the shrinkage of earth and swell of rock by actual measurement. This yardage was measured in the cuts and compared with the yardage of the same material measured in its compacted condition in railroad fills. It can be readily seen that any ordinary measurement of yardage of railroad cuts and fills would be of little value in determining the shrinkage or swell of the grading material, for two reasons:

(1) The construction records do not usually show the exact location in fills of grading materials taken from certain cuts, which would permit measuring the same material in the cut and later in its compacted condition in the fill.

(2) On an operating railroad, the yardage of cuts and fills is materially affected by the ditching and bank widening and wastage of material on fills.

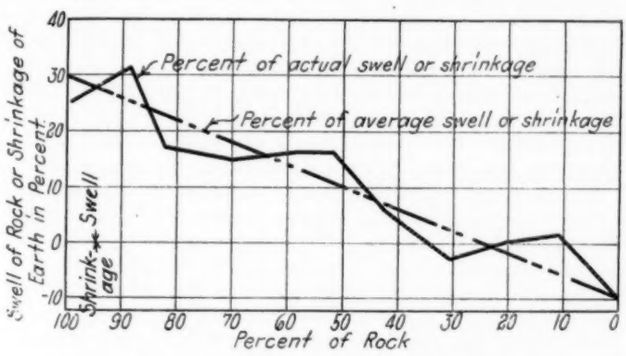
The sub-committee assigned to this investigation was composed of D. J. Brumley, chairman; H. E. Hale and Charles Silliman. Practically the first reliable data on this subject which the sub-committee was able to obtain was from the Vermont Central, on the Providence extension of the Grand Trunk. The grading was never completed and therefore the grading for certain fills came from adjacent cuts only and no other material could have been used in these fills. As the line had not been put in operation, the yardage was not affected by ditching or bank widening and care was used to select fills where there was no subsidence which might affect the measurements.

The total yardage finally assembled, on which reliable data on shrinkage and swell were determined, equalled about 12,000,000 cu. yd. This yardage came from 20 different states and is, therefore, representative of the whole country and this quantity can be considered a large yardage for the purpose of this study. The diagram gives the result of the study graphically.

Shrinkage of Ballast

By the term "shrinkage of ballast" is meant the decrease in volume of the ballast as loaded at the pit and measured in cubic yards dumped loosely in the car, compared with the number of cubic yards measured in track after the same ballast has been tamped and compressed by the passage of trains. Particular attention is called to the fact that "pay quantities" for ballast almost invariably consist of yardage of ballast dumped loosely in the car at the pit.

It is frequently assumed that ballast material, such as



Swell of Rock and Shrinkage of Earth

gravel, chatts, etc., will not shrink as much as earth. This assumption, however, fails to take into consideration the fact that the shrinkage of earth is measured by comparing the yardage as compacted under natural conditions in a cut, with the yardage of the same material compacted in a railroad fill, whereas the shrinkage of ballast is measured by comparing the yardage dumped loosely in cars at the pit, where it is paid for, with the yardage of the same material tamped and compacted in track under the passage of trains.

The difficulty of measuring the shrinkage of ballast with reasonable accuracy is due to the usual practice of ballasting a road piecemeal and to the general practice of keeping no record of the location of ballast bought under various contracts from various pits. The following table gives some interesting results of actual measurements showing the shrinkage from the pay quantities to the yardage as measured compressed in the track:

SHRINKAGE FOR VARIOUS KINDS OF BALLAST

Kind of ballast	Number of Projects	Yards of Material		Per Cent of shrinkage
		Purchased	Measured in track	
Crushed stone	8	2,113,117	1,812,020	16.62
Chatts	2	222,936	205,450	8.51
Gravel	3	381,586	313,295	21.80
Sand	1	74,910	65,484	14.39
Slag	1	195,159	157,234	24.12
Cinder	1	"Altoona Test"		27.00

The quantities of ballast in this table are not large, compared with the total ballast in the railroads of the United States. However, if we consider the difficulties of comparing the yardage of ballast measured, compressed in track, with the same material measured dumped loosely at

*From Bulletin No. 277, published by the American Railway Engineering Association.

the pit, we may consider ourselves fortunate to have this amount carefully measured.

The shrinkage of ballast has sometimes been referred to as a loss of ballast and in some cases the additional ballast added to overcome this shrinkage has been charged to operation because it is said to be a replacement. From this information it is evident that in ordering ballast to produce a given ballast section, an allowance must be made for shrinkage in the same way that an allowance is made for "cutting and wastage" of lumber for buildings.

Sweating of Freight in Cars

AN investigation of the sweating of steel roofs, conducted by the Central region of the Pennsylvania following complaints of cans sweating and rusting in transit, shows that condensation takes place in wooden cars as well as in cars of steel construction. Car roofs that radiate heat from the sun's rays into the car have no bearing on the case, as damage occurred at periods when there was no sunshine. A study made by the tin plate manufacturers showed that the atmospheric conditions in steel and wooden cars are practically the same at all times, the primary cause of sweating being changes in temperature. It was concluded that probably corrosion takes place because the tin coating is abraded in spots or its structure disturbed and the base metal of the can bared.

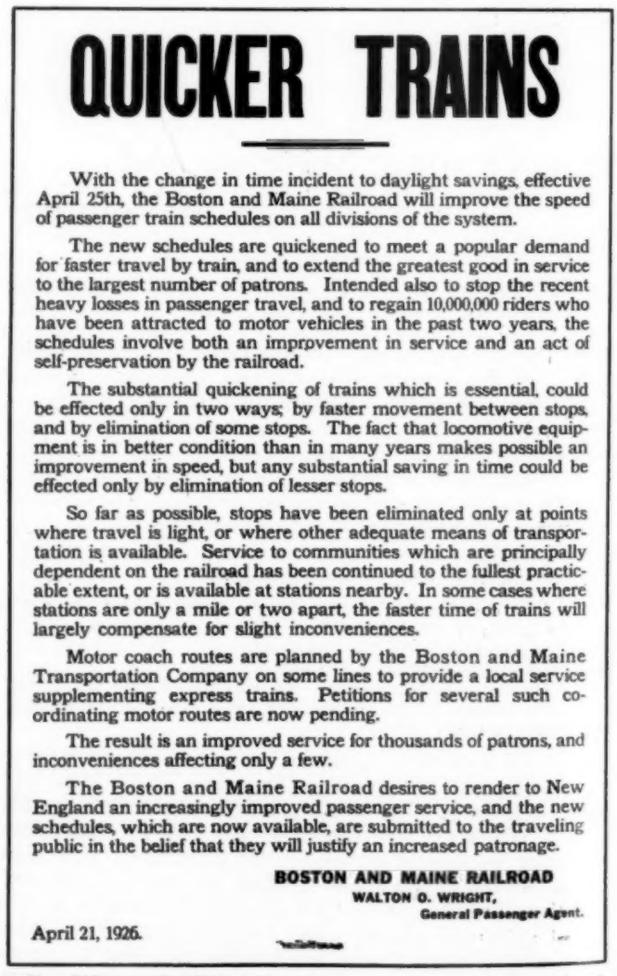
Previous to the investigation considerable damage occurred in winter months when merchandise was shipped in cars with steel roofs. The theory was that the steel roof of the car acted as a radiator when in the direct rays of the sun, warmed the atmosphere in the car and caused the condensation to precipitate upon the relatively cooler cans. This precipitation caused corrosion of the can on or in the vicinity of the soldered seams. That condensation and corrosion are not confined to the lading of steel cars is shown in two shipments in two wooden roof cars. In one, 3,432 cans rusted in a 100,000 lb. capacity car, while in an 80,000 lb. capacity car, 6,036 cans rusted.

The condensation on or sweating of a shipment of tin plates was found to be due primarily to sudden changes between nocturnal and diurnal temperatures. Wooden sheathing along the ends and sides of steel cars made the atmospheric conditions in the car practically the same as in a wooden car. In a test made by a manufacturer of tin plate it was found that on bright days the atmosphere in both kinds of cars carried more moisture than the outside atmosphere but apparently no consistent difference existed between the two types of cars. The wooden cars acted as a carrier of moisture, absorbing at night and on cold days, and deliquescing when the temperature rose. Sweating on the tin occurred when its temperature was below the dewpoint of the air with which it was in contact. In almost all cases the temperatures were the same for both types of cars and higher than the outside temperature. A rapid rise in temperature caused sweating, as the tin did not change temperature as quickly and could not keep pace with the rapid increase in dewpoint. Steel cars warmed up more rapidly than wooden ones but the dewpoints were relatively the same. Ventilation lowered the humidity on hot days to approximately the same level as that of outside atmosphere. Although this decreased the sweating under certain conditions when sudden rises in temperature and humidity in outside air took place, sweating still occurred. Ventilation increased the humidity within the car on cold damp days.

The study of the corrosion of cans in cars led to the conclusion that can companies should use a neutral flux. Corrosion occurred because the flux was wiped when too hot and a coating of tin removed or the flux was never wiped. When these cans are exposed to the atmosphere all conditions essential to corrosion are fulfilled, assuming that the electrolytic theory explains corrosion.

In most cases corrosion occurred in the center of the load on both sides of the longitudinal axis and generally below the horizontal axis of the load. In practically all cases the corrosion attacked the cans in the vicinity of the soldered seams. The cans were loaded in bulk, the top of the load never extending above the wooden sheathing on the sides of the car and never less than two feet from the roof of the car. The sides of the car were lined with paper and the load was covered with paper which hung down over the end of the load at the doorway.

Two reasons were advanced for corrosion. As the process of manufacturing cans is practically entirely mechanical there is a possibility of the tin coating being abraded or its structure being disturbed at various spots in the progress through machines and conveyors, fluxing, soldering and seam wiping. The other cause was the use of corrosive or hygroscopic flux for soldering seams which ate the tin and also exposed the base metal. In both cases the two metals formed a battery, the electro-chemical action of which resulted in corrosion. An analysis of two samples of flux showed them to be slightly acid with both zinc chloride and ammonium chloride present. The former is corrosive and the latter is hygroscopic.


QUICKER TRAINS
With the change in time incident to daylight savings, effective April 25th, the Boston and Maine Railroad will improve the speed of passenger train schedules on all divisions of the system.
The new schedules are quickened to meet a popular demand for faster travel by train, and to extend the greatest good in service to the largest number of patrons. Intended also to stop the recent heavy losses in passenger travel, and to regain 10,000,000 riders who have been attracted to motor vehicles in the past two years, the schedules involve both an improvement in service and an act of self-preservation by the railroad.
The substantial quickening of trains which is essential, could be effected only in two ways; by faster movement between stops, and by elimination of some stops. The fact that locomotive equipment is in better condition than in many years makes possible an improvement in speed, but any substantial saving in time could be effected only by elimination of lesser stops.
So far as possible, stops have been eliminated only at points where travel is light, or where other adequate means of transportation is available. Service to communities which are principally dependent on the railroad has been continued to the fullest practicable extent, or is available at stations nearby. In some cases where stations are only a mile or two apart, the faster time of trains will largely compensate for slight inconveniences.
Motor coach routes are planned by the Boston and Maine Transportation Company on some lines to provide a local service supplementing express trains. Petitions for several such coordinating motor routes are now pending.
The result is an improved service for thousands of patrons, and inconveniences affecting only a few.
The Boston and Maine Railroad desires to render to New England an increasingly improved passenger service, and the new schedules, which are now available, are submitted to the traveling public in the belief that they will justify an increased patronage.
BOSTON AND MAINE RAILROAD
WALTON O. WRIGHT,
General Passenger Agent.
April 21, 1926.

Poster Used by Boston & Maine to Announce Wholesale Quickening of Passenger Train Schedules

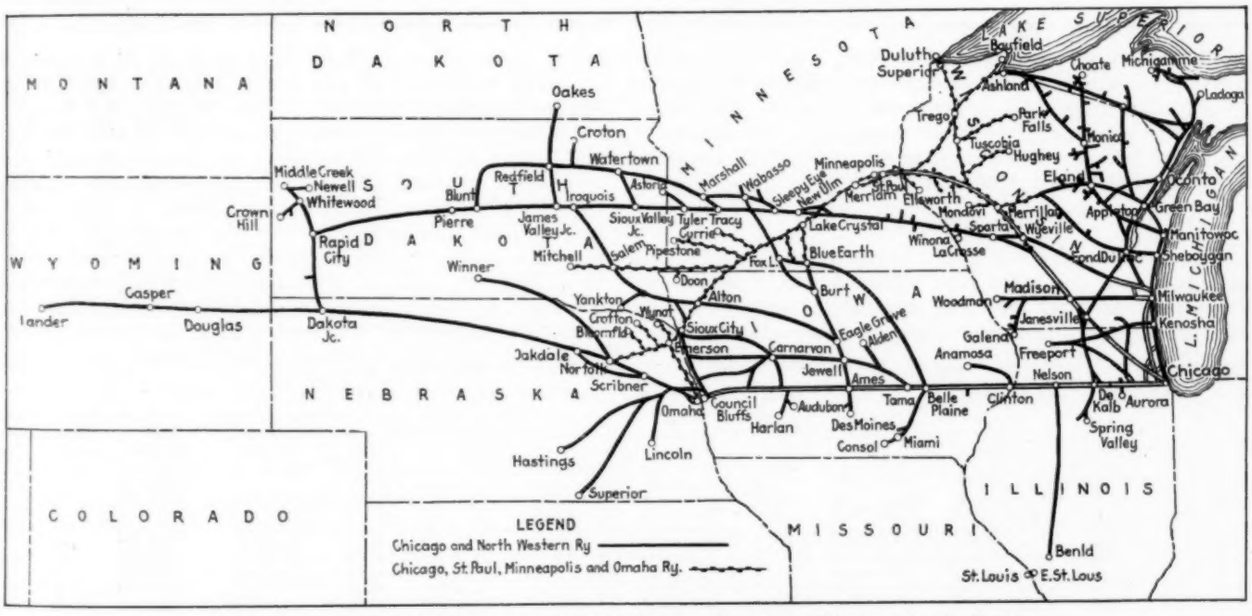
North Western Needs Traffic and Higher Rates

Net return in 1925 *shows improvement over* 1924 *but still much below pre-war averages*

THE Chicago & North Western's annual report for 1925 issued about a month ago showed net income after interest and other charges of $10,784,578 which was equivalent after allowance for 7 per cent preferred dividends to $6.34 a share on the common stock. Net income in 1924 was $7,671,324, equal after the preferred dividend requirements to $4.20 a share on the common. The North Western is now paying the 7 per cent dividends on its preferred and 4 per cent on its common. From 1902 to 1919 it paid 8 per cent and 7 per cent respectively on these issues. There was left after dividends in 1924 a balance of $297,574 and in 1925 a balance of $3,410,828.

The North Western acquired a majority interest in the Chicago, St. Paul, Minneapolis & Omaha about 40 years ago and recently by an offer to exchange its stock for that of the Omaha, has increased its stock control to a larger amount. The Omaha in 1925 had a net corporate income of $813,165, equivalent to $6.42 a share on the preferred stock. The company pays only 5 per cent dividends on its preferred stock and none on its common. The preferred, in fact, is entitled to receive 7 per cent dividends before there are any payments on the junior issue. The 1924 net income was $1,036,908 which was equivalent after allowance for 7 per cent on the preferred (only 5 per cent was paid) to $1.34 a share on the common.

These figures are anything but good. It will be noted, for instance, that the North Western had a larger net income in 1925 than in 1924. The 1925 net income of $10,784,578 was, in fact, the largest reported since 1920, in which year, of course, corporate net income was sustained by the receipt from the government of standard return for two months and guaranty for six. The North Western is not showing anything like the earning power that it showed before federal control. Thus in the 15½ years from June 30, 1905, to December 31, 1920, the Chicago & North Western's net corporate income varied between a low figure of $11,467,331 in the fiscal year ended June 30, 1912, and a high figure of $20,368,924 in the calendar year 1916 and there was not a single year in which the net was not larger than that reported for 1925. Furthermore, of the 15½ years there were only five in which the net income did not exceed $13,000,000. There were three in which it exceeded $17,000,000. Except for the years since the termination of federal control, one has to go back as far as 1905 to find a year in which net income was below $11,000,000. The value of the North Western property in 1905 was not one-half of what its value is today.



The Chicago & North Western and the Chicago, St. Paul, Minneapolis & Omaha

In the case of the Omaha, the results of such a comparison are even less satisfactory. Thus its 1925 net income of $813,165 was less than in 1924 and less also than in 1922. It was about one-third of the corporation's net income during the federal control period and less than one-quarter the net corporate income of 1916. In fact in the present century there have been but two years in which the Omaha's net income was less than it was in 1925, namely, in 1921 and 1923. Even as far back as 1897 the Omaha reported net available for dividends of $1,389,251.

The importance of these figures, of course, lies perhaps less in what they tell about the North Western than in what they indicate concerning the status of the north-

western carriers. They supplement, for instance, the recent trend of the Burlington which, as pointed out in an article in last week's issue of the *Railway Age*, has invested $120,000,0000 in its property during the past ten years and now earns less net income than it did before it invested these funds.

Figures such as those of the North Western and the Burlington emphasize the dire necessity of the western carriers for rate relief, because the conditions reflected certainly cannot continue indefinitely. Indeed, the whole mystery of the opposition to the petition for rate relief of the western carriers comes in seeking understanding of how those persons and interests opposing such rate relief expect the western carriers to continue indefinitely to render adequate service under the conditions that have

TABLE I—CHICAGO & NORTH WESTERN, OPERATING RESULTS, SELECTED ITEMS, 1916 TO 1925

Year	Mileage	Revenue ton miles	Revenue passenger miles	Rev. per ton mile, cents	Total operating revenues	Total operating expenses	Net operating revenues	Operating ratio	Net railway operating income	Net after charges	Net charges for additions and betterments
1916	8,108	8,130,953,000	1,158,625,000	0.80	$97,978,844	$65,120,827	$32,858,017	66.46	.....	$20,368,924	$3,894,781
1917	8,108	9,220,973,000	1,262,626,000	0.78	108,264,983	78,758,989	29,505,995	72.75	.....	17,125,031	18,492,434
1918	8,090	9,358,287,000	1,255,192,000	0.936	127,295,678	109,498,572	17,797,106	86.02	$12,498,939	14,482,711	8,358,402
1919	8,090	8,294,483,000	1,412,671,000	1.110	139,589,915	119,579,387	20,010,528	85.66	12,771,197	13,982,582	5 844,310
1920	8,298	9,559,270,000	1,444,559,000	1.156	165,692,399	157,110,200	8,582,199	94.2	—1,609,232	12,545,857	25,129,728
1921	8,403	6,775,908,000	1,184,674,000	1.412	144,775,476	129,091,428	15,684,048	89.17	6,651,137	—1,245,433	12 030,791
1922	8,404	7,579,554,000	1,078,241,000	1.329	146,100,437	119,191,134	26,909,303	81.58	17,036,305	8,897,536	1,791,538
1923	8,463	9,248,615,000	1,122,116,000	1.223	160,425,965	132,507,531	27,918,434	82.60	15,843,375	8,737,468	27.442.574
1924	8,463	8,290,313,000	1,097,745,000	1.249	149,454,584	120,536,645	28,917,939	80.65	16,784,051	7,671,324	8.763,638
1925	8,468	8,286,548,000	1,052,381,000	1.266	148,538,269	115,626,056	32,912,214	77.84	21.108,750	10,784,578	8,326,723

Standard return for operations during federal control, or average net railway operating income for three years ended June 30, 1917, $23,201,016.

confronted them since federal control. Surely, these interests cannot expect that the carriers will find it possible to continue to expand to meet the needs of the future while the investor in railroad securities is so decidedly penalized for his participation or discouraged by the published results from further participation.

Mileage

The North Western and Omaha lines are operated so much as a unit, that it is expected that if they were completely merged into one company there would be savings beyond those now made possible of only about

cent (bituminous, 12.76 per cent; iron ore, 18.19 per cent); products of forests, 11.77 per cent; manufactures and miscellaneous, 20.72 per cent and l.c.l., 3.63 per cent. The Omaha ton-miles in 1925 equalled about 15 per cent of those of the parent company. The Omaha traffic was divided as follows: Products of agriculture, 29.53 per cent; animals and products, 7.05 per cent; products of mines, 19.13 per cent (bituminous, 12.31 per cent); products of forests, 18.31 per cent; manufactures and miscellaneous, 21.12 per cent and l.c.l., 4.86 per cent.

Three Essentials for Success

The classification of commodities carried does not go very far towards offering any explanation of the failure of the North Western to show greater earning power in recent years. The 29.53 per cent products of agriculture combined with the 7.05 per cent animals and products is, however, eloquent as concerns the Omaha. But there is much more to the story than that alone. In this day and age there are many requirements for the commercial success of a railroad. The most important are (a) an increasing volume of traffic (b) a level of rates which has increased in proportion to the increasing cost of materials and labor, and (c) ability to operate so efficiently as to hold the costs of doing business within reasonable bounds. In the analysis of the Chicago, Burlington & Quincy appearing in last week's issue it was noted that

TABLE II—CHICAGO, ST. PAUL, MINNEAPOLIS & OMAHA, OPERATING RESULTS, SELECTED ITEMS, 1916 TO 1925

Year	Mileage	Revenue ton miles	Revenue passenger miles	Rev. per ton mile, cents	Total operating revenues	Total operating expenses	Net operating revenues	Operating ratio	Net railway operating income	Net after charges	Net charges for additions and betterments
1916	1,753	1,714,280,000	253,521,000	0.810	$20,855,286	$13,668,879	$7,246,407	65.25	.....	$3,714,975	$1.161.778
1917	1,749	1,678,231,000	268,990.000	0.830	21,476.509	15,841,313	5.635,196	73.76	.....	2,118,589	2,022.513
1918	1,749	1,746.316,000	281,323,000	0.968	24,829,981	20,884,199	3.945.782	84.11	$2.631,520	2,406,181	752.202
1919	1,749	1,654,592,000	265.711,000	1.108	27,732,019	23,316,465	4,415.554	84.08	2,698,776	2.376.718	647.280
1920	1,749	1,781,518,000	268,914,000	1.171	26,489,817	23,767,081	2,722,736	89.72	1.641,596	2,587,670	3,074,704
1921	1,749	1,345.870,000	192,740.000	1.433	28,137,408	24,392.314	3,745,093	86.69	1,842,852	—285,677	1,670,687
1922	1,749	1,479,070,000	173,485,000	1.325	27,801,007	22,297,050	5,503.956	80.20	3,812,671	1,177,929	469,286
1923	1,749	1,612,952.000	175,109.000	1.245	28.363,234	23,516,147	4.847.087	82.91	3.028,915	624,173	669,069
1924	1,749	1,638,715,000	163,278.000	1.222	27.915,736	22,189,824	5.725,913	79.49	3.408 989	1.036,908	602.561
1925	1,842	1,579,746,000	160,438,000	1.239	26,850,133	21,480,708	5,369,425	80.00	3,221.619	812,165	392,161

Standard return for operations during federal control, or average net railway operating income for three years ended June 30, 1917, $4,934.790.

$228,000. The records and operating results are reported separately. The principal lines of the system are those between Chicago and Omaha, between Chicago and Milwaukee and between Chicago and the Twin Cities, and in addition the Omaha line between the Twin Cities and Omaha. The lines serve Wisconsin with an elaborate network and extend westward across Minnesota and Iowa with extensions across South Dakota and Nebraska with a western terminus at Lander, Wyo.

The traffic of each of the roads is rather diversified although, considering the present level of rates on agricultural products and live stock, having rather a higher percentage of these commodities than might be for the best. The North Western traffic in 1925 was divided as follows: Products of agriculture, 12.05 per cent; animals and products, 4.83 per cent; products of mines, 47.00 per

the Burlington has had only the third of these advantages. What about the North Western and the Omaha?

Traffic

In the analyses of the operations of railroads that have appeared in these columns each week it has been repeatedly emphasized that a railway is like any other commercial enterprise in that it must get an adequate volume of business. Apparently the North Western and the Omaha have not had the business. Thus, while the North Western in 1925 moved 6.88 per cent more revenue tons than in 1924, on the other hand its ton-miles were 0.05 per cent less. In fact, there have been but three years in the past ten years in which the road's revenue ton-miles were less than in 1925, namely, 1916, 1921 and 1922. It is further to be noted that the 1925 ton-miles were but 2 per cent in ex-

cess of those of 1916—2 per cent, that is, over a 10-year period. The 1925 ton-miles were, on the other hand, 11.4 per cent less than in 1918; they were 13.3 per cent under 1920.

The Omaha has had no better fortune. Its 1925 ton-miles were less than those of any year but two in the past ten years, 1921 and 1922. They were 7.8 per cent under 1916; 9.6 per cent under 1918 and 11.3 per cent under 1920. In the case of both roads the 1925 passenger-miles were the lowest reported in an extended period. The North Western's 1925 revenue passenger-miles were 8.2 per cent less than those of 1916. The Omaha's decrease in passenger traffic since 1916 has been so great as almost to be unbelievable; the reduction, in short, has been 37.7 per cent. Plainly, the North Western and the Omaha simply have not had the business.

It would require management of utmost unusual skill for any company to carry on operations with a former degree of success if its volume of business showed such a declining ratio as this. As respects the failure of traffic to increase, the North Western is not greatly out of line with the other roads of the northwestern region, and yet there are many who allege and believe that the roads in that region are not suffering from lack of business.

TABLE III. COMPARISON OF SELECTED FREIGHT OPERATING STATISTICS

	1925	1920	Per cent of change Inc.	Dec.
Mileage operated	8,468	8,234	3.0	....
Gross ton-miles (thousands)	24,181,953	25,259,790	....	4.3
Net ton-miles (thousands)	9,817,860	11,650,582	....	15.7
Freight train-miles (thousands)	17,560	20,892	....	15.9
Freight locomotive miles (thousands)	18,415	21,619	....	14.8
Freight car-miles (thousands)	664,534	664,651	....	0.3
Freight train-hours	1,426,164	1,924,568	....	25.9
Tons of coal consumed by freight locos.	1,942,734	2,844,648	....	31.7
Car-miles per day	23.7	22.2	6.8	....
Net tons per loaded car	23.4	26.3	....	11.0
Per cent loaded to total car-miles	63.2	66.6	....	3.4
Net ton-miles per car day	351	390	....	9.9
Freight cars per train	38.8	32.7	18.6	....
Gross tons per train	1,377	1,209	13.9	....
Net tons per train	559	558	....	....
Train speed, miles per train-hour	12.3	10.9	12.8	....
Gross ton-miles per train-hour	16,956	13,125	29.2	....
Net ton-miles per train-hour	6,884	6,054	13.8	....
Lb. coal per 1,000 gross ton-miles	140	.....	....	....
Loco-miles per loco-day	52.4	64.1	....	18.2
Per cent freight locos. unserviceable	22.3	25.3	....	3.0
Per cent freight cars unserviceable	9.8	7.2	2.6	....

Ton-Mile Earnings

As concerns its rate level, the North Western has fared rather better than its neighbors. A comparison of the average revenue per ton-mile in 1925 with that of the calendar year 1916 shows for the roads of the United States as a whole an increase of 55 per cent. In the eastern district there was an increase of 72 per cent; in the southern district an increase of 49 per cent and in the western district an increase of 43 per cent. The Chicago & North Western's revenue per ton-mile, however, in 1925 was 58 per cent greater than in 1916 and the Omaha showed an increase of 55 per cent. One may wonder why the North Western should be so out of line in this respect with its neighbors. No doubt, one important reason has been the greater amount of diversified farming in the North Western territory which in this respect is quite different from the territory served by the transcontinental carriers extending further west.

Efficiency

It is difficult to say whether the North Western has succeeded in keeping control of its costs as well as it might have done because its results have been so affected by its loss of traffic since 1920. Answer will be forthcoming when the new president, Fred W. Sargent, has held the reins of management a while longer. Great things are expected of him and perhaps it is not without significance in this respect that with about the same volume of freight traffic and with decreased passenger traffic as in 1924, the North Western's 1925 net income was $3,000,000 or about 40 per cent greater. The table of operating statistics is given as usual, 1925 being compared with 1920. The statement is perhaps inconclusive, as might be expected from the effects of the decreased amount of business. However, the reduction of 25.9 per cent in freight train-hours and of 31.7 per cent in tons of fuel consumed by freight locomotives will not escape notice.

1925 Results Show Improvement

There is then the other side of the story, the rather satisfactory betterment in North Western fortunes in 1925. It has been pointed out that the road's revenue ton-miles in 1925 were .05 per cent less than in 1924. This traffic was carried with a revenue per ton-mile 1.36 per cent greater than in 1924 so that there was an increase in the freight revenues of $1,371,709 or 1.33 per cent. On the other hand there was a decrease in passenger revenues of $2,103,529 or 7.29 per cent and the total operating revenues decreased $916,315 or 0.61 per cent. As against this there was a decrease in operating expenses of $4,910,589 or 4.07 per cent. Of this decrease no less than $3,545,876 was in transportation expenses and of the decrease in such expenses nearly one-half was in fuel. The North Western 1925 operating ratio of 77.84 compared with 80.65 in 1924 and was the lowest reported since 1917. The ratio of transportation expenses to total operating revenues was 38.34 as against 40.48 in 1924. "Credit for this result," says President Sargent in his annual report, "is due to the operating officials and employees, all of whom have rendered most enthusiastic and loyal service throughout the year." And he significantly adds, "These efforts will be continued in an intensive way, and it is hoped and believed that even better results will be produced during 1926."

The North Western in 1925 had a net railway operating income or net after equipment and joint facility rents, but before deductions of interest and other charges, of $21,108,750. This compared with $16,784,051 in 1924 and was an increase of 26 per cent. It was also the best net railway operating income reported since the beginning of federal control. Nevertheless, it compared with standard return for operations during federal control or the average annual net railway operating income for the three years ended June 30, 1917, of $23,201,016. In other words the 1925 net operating income was 91 per cent of the standard return. The Omaha did not fare as well as the parent company. Its net railway operating income in 1925 was $3,221,619 as compared with $3,408,989 in 1924. The Omaha's standard return was $4,934,790 and the 1925 net operating income was but 65 per cent of that amount.

Conclusion

It is apparent that the North Western and the Omaha have suffered recently for lack of traffic. They have had an increase in their rate level but not sufficient to meet increased costs of doing business and certainly not sufficient to compensate for the lack of tonnage. The new president evidently is making progress as concerns improvement of the efficiency of the property's operations. Mr. Sargent as a legally trained man has been much in the public eye, from his having had much to say about the difficulties of the western railroads. The poor earnings of his own property in recent years, while they amplify his problem many-fold, give great force to his appeals for fairer treatment of the western carriers.

General News Department

F. E. Morrow, chief engineer, Chicago & Western Indiana, has been elected president of the Western Society of Engineers, Chicago. George W. Hand, assistant to the president of the Chicago & North Western, has been re-elected treasurer. These and other officers-elect of the society will be installed at the annual dinner on June 2.

William H. Johnston has resigned as president of the International Association of Machinists and the executive council has appointed A. O. Wharton, heretofore a member of the labor group of the Railroad Labor Board, to succeed him. The association's announcement said that Mr. Johnston has been in ill-health for several months.

Among the papers that will be presented at the annual convention of the American Water Works Association at Buffalo, N. Y., on June 9, are three of special interest to railways. These include papers on "Water Problems Encountered in Railroad Practice," by S. C. Johnson, chief chemist, Chesapeake & Ohio, Richmond, Va.; "Progress in Railroad Water Treatment," by R. E. Coughlan, supervisor of water service, Chicago & North Western, Chicago, and "Probable Future Developments in Railway Water Treatment," by C. R. Knowles, superintendent water service, Illinois Central, Chicago.

The Railroad Labor Board has authorized the following wage increases to signalmen employed on the Kansas City terminal: Leading maintainers, gang foremen and leading signalmen, three cents an hour; signalmen, assistant signalmen, signal maintainers and assistant signal maintainers, three cents an hour; helpers, three cents an hour. In another decision the board authorized wage increases of two cents an hour to telegraphers, telephone operators, agents, agent telegraphers, agent telephoners, tower men, levermen, tower and train directors, block operators, and staffmen on the Alabama & Vicksburg. An application by employees of these classes on the Minneapolis, St. Paul & Sault Ste. Marie for similar wage increases was denied.

Missouri Pacific Authorized to Install Block Signals Instead of Train Control

The Interstate Commerce Commission has suspended until further order its second automatic train control order as it applies to the Missouri Pacific, "in consideration of petitioner diligently proceeding to install block signals between Poplar Bluff, Missouri, and Texarkana, Arkansas-Texas, a distance of 243.5 miles, and between Jefferson City, Missouri, and Kansas City, Missouri, a distance of 147.6 miles."

The Kansas City Northwestern

Reports that the Missouri Pacific contemplates leasing the abandoned line of the Kansas City Northwestern are denied: No offer of any kind has been made. As a result of insistent demands of local citizens the general superintendent of the Missouri Pacific, with other officers, recently visited points on the line and told local citizens that the only possible way to obtain service on the line would be for them to rehabilitate it at their own expense, after which the Missouri Pacific, if asked, would consider some plan whereby the operation of some train service would be possible. No effort in this direction has been made so far as known.

New York Railroad Club

The New York Railroad Club at its meeting on Friday, May 21, listened to an address on "The Railroad Department of Public Relations" by Charles Frederick Carter, the well-known writer on transportation subjects. The entertainment features were furnished by the Long Island Railroad, under the direction of George Flatow, publicity agent. They included numbers by the Long Island Employees' Band, under the leadership of H. Edward Zitzmann; baritone solos by Laurance W. Ballou, of the police department, solos by John P. McDermott, of the publicity department; and numbers by the Long Island Railroad Trainmen's Trio.

The date of the annual outing of the club at Travers Island has been changed from Thursday, July 15, to Thursday, July 8.

Equipment Installed

Class I railroads in April placed in service 10,617 freight cars, according to reports filed with the Car Service Division of the American Railway Association. This brought the total number of cars placed in service this year to 31,980, as compared with 57,926 during the corresponding period last year and 46,421 during the same period in 1924. Of the cars now reported 5,791 were box cars, 3,541 coal and 855 refrigerator.

Freight cars on order on May 1 totaled 48,762, compared with 43,301 on the same date last year and 68,019 on the same date in 1924. These included 21,259 box, 19,987 coal and 5,230 refrigerator cars. Class I railroads during April also installed in service 189 locomotives, which brought the total number placed in service up to 759. During the first four months last year 601 locomotives were installed in service and during the same period in 1924 there were 758. Locomotives on order on May 1 this year amounted to 654 compared with 340 on the same date last year and 552 on the same date two years ago.

These figures as to freight cars and locomotives include new and leased equipment.

B. & M. Foremen's Educational Clubs

The eight mechanical department foremen's clubs on the Boston & Maine held a joint get-together meeting in Boston on Saturday evening, May 22, 375 being in attendance. The presiding officer was R. E. Witcher, president of the Association of Foremen's Educational Clubs of the Boston & Maine. Short talks were given by B. R. Pollock, vice-president and general manager; W. O. Forman, mechanical superintendent; Prof. E. L. Getchell, University of New Hampshire; I. C. Blodgett, assistant to the mechanical superintendent; F. H. Becherer, superintendent car department, Central Railroad of New Jersey; C. W. Culver, works manager, Elizabethport shops, Central Railroad of New Jersey; Charles E. Barba, mechanical engineer, Boston & Maine; Frank Barbey and Roy V. Wright, editor, Railway Mechanical Engineer. Mr. Becherer, until recently assistant to the mechanical superintendent of the Boston & Maine, had done much to organize and develop these clubs; he was presented with a diamond stick pin.

End of Railroad Labor Board

The Railroad Labor Board has remanded to the parties in interest all pending disputes. At the time of the enactment of the new railroad labor legislation the Board's calendar had on it 426 dockets covering 468 disputes, 44 of which were of a general nature, affecting large groups of employees. Among the applications for wage increases were those of the Brotherhood of maintenance-of-way employees, affecting 31 roads. This case was heard last October, but decision had not been rendered. The Brotherhood of Railway and Steamship Clerks and 18 roads were involved in a pending application for wage increases upon which no hearing was held. Two cases involved request for wage increase by the Order of Railroad Telegraphers for the telegraphers on the Chicago, Burlington & Quincy and the Chicago Great Western. No decision had been rendered although the case was heard in September. The Brotherhood of Locomotive Engineers and the Brotherhood of Locomotive Firemen and Enginemen have requests for increases similar to those presented by the Order of

Railway Conductors and the Brotherhood of Railroad Trainmen.

A meeting has been called to be held in Chicago on June 2 when the brotherhoods will consider plans for wage-increase campaigns. The expectation is that the engine service brotherhoods may ask the train service brotherhoods to join with them in asking increases. Certain applications of the train service brotherhoods for increases which were made directly to the railways have been pending for some time.

L. M. Parker, former secretary of the Labor Board, has been appointed custodian of the records of the Board and is in charge of closing up its affairs.

Switchers Give Thirty Days Continuous Service

Four locomotives of the Terminal Railroad Association of St. Louis, during a recent test, were kept in continuous service for a period of 30 days without having any of the fires cleaned. These locomotives, equipped with Hulson grates, were assigned to heavy transfer service, being handled by regular crews on three shifts. At no time were the fires cleaned, their condition being kept good by shaking the grates regularly, at intervals depending upon the amount of fuel burned. Ash pans were dumped every eight hours, at the time of changing crews. At the end of the 30-day test period, the fires were in good condition and apparently could have been continued indefinitely but for the necessity of dumping to permit boiler washing. This test showed a large saving in fuel, as it is estimated that every time a fire is cleaned, about 500 lb. of coal is required to restore normalcy; formerly 16 hours was the average time between fire-cleaning periods. In a large system of busy terminals like St. Louis, having 200 switching locomotives, continuous service throughout the 24-hour period is essential, and there is no intermission in which repairs or service requirements may be performed as in road service.

Magazine Editors to Meet

The American Railway Magazine Editors' Association will meet at St. Paul, Minn., June 3 and 4. The program will include addresses and discussions on how railway magazines can increase employee morale; why women employees are "for" railway employee magazines; U. S. mail requirements on railway employee magazines; reader interest and how to retain it; paper, printing and typographical arrangement; arousing interest of the employee's family through railway publications; getting good photographs for the magazine; how can railway magazines help employees in technical training; problems of the correspondent on-line; better citizenship program; future activities of the association, and an open forum.

The annual dinner will be held at the St. Paul Hotel on the evening of June 3, K. D. Pulcipher, president, American Railway Magazine Editors' Association, presiding. The speakers will be President Ralph Budd of the Great Northern Railway; Charles D. Morris, assistant to chairman, Western Railways' Committee on Public Relations, and Harper Leech, industrial editor of the Chicago Tribune.

Twin Cities Railway Women Give Dinner

"Women of today have advantages incomparable with those possessed in other ages," according to Miss Cora Nelson, president of the Chicago Railway Business Women's Association, and secretary to the chairman of the Western Trunk Line Committee, at the international spring meeting of the Twin Cities Railway Business Women's Association, held at Minneapolis, Minn., on May 22. The meeting, which was attended by 500 guests from the Twin Cities, the northwest and Canada and 35 from the Chicago Railway Business Women's Association, was characterized by a program of entertainment which included only women speakers. The two principal speakers at the dinner were Miss Nelson and Miss Nellie Severance, a former president of the Twin Cities organization.

"This is an age of intensive development rather than of expansion," Miss Nelson said. "Most of the great explorations and conquests have been accomplished, and the task remains to bring the peoples of the world into greater harmony. This is primarily a woman's task.

"Women of today are in a position to make their desires effective and to play a leading role in the world's affairs. It is organizations of this kind that may do the greatest work to bring understanding and helpfulness between nations and peoples."

Miss Severance said that the dinner was the realization of a long cherished dream. "Women are especially fitted for the task of solving international problems; they have come into suffrage only after the period of greatest nationalism has passed its zenith. Men have too long been permeated with the spirit of intense nationalism. Boundary lines to them have become too concrete, too definite. . . . Carrying on a work of this kind seems ideal for an organization of railway and steamship business women, for there is not a nook or cranny of the world into which their influence cannot creep. We must play a leading role in the movement for better understanding between nations."

Program Mechanical Division Convention at Atlantic City

The seventh annual meeting of Division V—Mechanical, American Railway Association, will be held in the Greek Temple on Young's Million Dollar Pier, Atlantic City, N. J., June 9 to 16, inclusive. Following the custom of years, the sessions will be held each day from 9:30 a. m. to 12:30 p. m., daylight saving time. The first week's program, Wednesday, Thursday and Friday, June 9 to 11, inclusive, is devoted to car subjects, while the second week's program, Monday, Tuesday and Wednesday, June 14 to 16, inclusive, is devoted particularly to motive power subjects. The program is as follows:

WEDNESDAY, JUNE 9

Address by R. H. Aishton, president, American Railway Association.
Address to be announced.
Address by chairman.
Action on minutes of annual meeting of 1925.
Appointment of Committees on Subjects, Resolutions, Correspondence, etc.
Unfinished business.
New business.
Committee reports:
- General.
- Nominations.
- Design of Shops and Terminals.

THURSDAY, JUNE 10

Committee reports:
- Arbitration.
- Prices for Labor and Materials.
- Safety Appliances.
- Specifications and Tests for Materials.
- Loading Rules.

FRIDAY, JUNE 11

Committee reports:
- Car Construction.
- Tank Cars.
- Brakes and Brake Equipment.
- Couplers and Draft Gears.

MONDAY, JUNE 14

Report of Committee on Locomotive Design and Construction.
Election of Officers.
Report of Committee on Wheels.

TUESDAY, JUNE 15

Committee reports:
- Electric Rolling Stock.
- Locomotive and Car Lighting.

WEDNESDAY, JUNE 16

Report of Committee on Utilization of Locomotives.
Individual paper—An Analysis of Relative Tracking Characteristics, by H. H. Houston, Westinghouse Electric & Manufacturing Company.
Closing exercises.

Proposed Railroad Legislation

The Senate interstate commerce committee at a meeting on May 20 ordered favorable reports on the bill introduced by Senator Wadsworth to require railroads to transport a blind person and attendant for a single fare, and a resolution proposed by Senator Cummins to repeal the resolution passed in 1923 requiring the Interstate Commerce Commission to make a monthly report to Congress or the President, regarding the condition of railroad equipment.

The committee also announced that no further consideration would be given at this session to the bill to prohibit a Pullman surcharge or the bill for the regulation of highway motor transportation but later adopted a motion by Senator Pittman to reconsider its decision as to the surcharge bill.

Representative McLaughlin of Nebraska, who is the principal advocate in the House of legislation to abolish the Pullman surcharge, has introduced a bill, H. R. 12,312, to amend the commerce act to provide that each passenger train operated for the accomodation of the general public shall include at least one day coach and that no extra fare may be charged for transportation in a day coach on an extra-fare train.

Representative Hawes, of Missouri has resigned as a member

of the committee on interstate and foreign commerce of the House of Representatives.

The Senate committee on interstate commerce on May 24 held a hearing on the resolution introduced by Senator Shipstead, providing for an investigation of the strike on the Western Maryland. W. A. Paddock, assistant grand chief of the Brotherhood of Locomotive Engineers, said that the Western Maryland is the only Class I road not paying the standard wage scale for enginemen, and expressed the hope that the resolution would result in a far-reaching investigation of conditions on the road. Some members of the committee expressed doubt as to what action Congress could take on the subject in any event.

M. C. Byers, president of the Western Maryland, also testified before the Senate committee, giving the railroad side of the controversy as to the causes for and the conditions resulting from the strike.

Senator Cummins on May 25 submitted to the Senate his report from the interstate commerce committee recommending the passage of the resolution rescinding that of February 26, 1923, requiring the Interstate Commerce Commission to make a monthly report on the condition of railroad equipment. "There may have been and probably was, a real necessity for requiring such reports at the time Senate Resolution 438 was passed," he said. "It will be remembered that this followed quickly after the general strike called July 1, 1922. The strike has long since passed into history and the committee feels that there is no longer the necessity for continuing the labor and expenses imposed upon the Interstate Commerce Commission which the resolution involves."

Senator Cummins also submitted a favorable report on his bill S. 1871, to punish the transportation of stolen property in interstate or foreign commerce.

Senator Wheeler, of Montana, has introduced in the Senate a bill similar to that of Representative McLaughlin in the House to require railroads to include at least one day coach in each passenger train and to prohibit the charge of an extra fare for transportation in a day coach on an extra-fare train.

Says Canadian Parliament Should Be Board of Directors of C. N. R.

A fight over the question of how much information about its details of management the Canadian National may be compelled to make public was staged in the House of Commons at Ottawa last week when a motion by the Minister of Railways and Canals to name the special committee to deal with the estimates of that railway system came before the House. While this committee has functioned during the last three or four sessions without opposition by the Conservatives some of their members last week strenuously opposed its appointment and finally, on a vote of 107 to 92, the Dunning motion was passed. The committee will begin its consideration of the railway estimates at once.

Thomas L. Church, one of the Toronto Conservatives, started the fight on Wednesday, saying in part: "I do not think it is in the public interest that this committee should usurp the rights of parliament. The committee should not be appointed. The National railway is a public utility which should be operated from the commercial aspect and the country has elected 245 members of parliament as directors to see it is run properly.

"Is this a free parliament or not? Are we conducting business in the way in which it is done in the mother parliament today? Does the National Railways belong to the president or to the people of Canada? Is parliament not entitled to this information? We are 245 representatives of the people of Canada; we are trustees of the people; we are asked on the hustings about the Canadian National Railways and no one can answer. Why should these things be hidden away so that we cannot find out the salaries of these officials or the details of operation and capital account? We know the salary of the Governor General and what is spent on Rideau Hall. The Hon. the Speaker who is the most important public servant we have in this country, who presides over this House, gives us the details of the expenditure for the maintenance of the services of this House."

Another member, A. de Witt Foster (Hants-Kings), said: "Is it in the public interest that the people of this country should know whether three or four men from the City of New York who may have been connected with a firm there that went into liquidation, should be given positions in Canada at salaries which, it is reported in the streets, are anywhere from $30,000 to $50,000 a year, when we know there are in this country today men who could be appointed to those jobs at one-half the salaries and who would do just as good work?"

C. N. R. Deficit on Interest Held by Public, $5,735,000 —Reduction in Capitalization Considered

"Last year's operating results (of the Canadian National)," said Minister of Railways Dunning in a speech on the Budget in the House of Commons on May 25, "were so far in advance of previous years that I feel that my first duty in relation to the report itself should be the altogether happy one of congratulating the chairman and president (Sir Henry Thornton), the board, the responsible officers and the rank and file of the National Railways on the results achieved.

"The figures indicate roughly that while two-thirds of this year's improvement of $15,000,000 in net earnings was the result of increased business due to a good harvest and improving trade, one-third was due to decreased costs of operation. And it will be noted that Sir Henry Thornton affirms that this improvement was accompanied by no deterioration in service or unfair treatment of employees."

The minister referred to the improvement shown even since the Budget speech of the Minister of Finance on April 15 last. In that speech it was estimated that for the fiscal year ended March 31 last there was a shortage of net earnings in the Canadian National against the interest payable on debt in the hands of the public of $7,400,000.

"When the Budget speech was delivered," said Mr. Dunning, "the actual figures for the government fiscal year were not available. Since they have been available it is shown that the position is even better, and that the deficiency in net earnings to meet interest charges due the public was not $7,400,000 but $5,735,502—and this after allowing for such charges as amortization of discount, depreciation accruals, and retirements of the ledger value of equipment taken out of service, amounting in all to more than $3,000,000."

An answer to criticism uttered in the Senate is given by Mr. Dunning in regard to the railway debt. "There has been criticism in another place to the effect that there is no assurance that the increase in railway debt would grow less in the near future. The answer is that the annual increase already grows smaller. Including government interest, the increase in railway debt has, as stated, amounted to $636,000,000 during the last six years. Stripped of the $153,000,000 of government interest the increase was $483,000,000. Of the $483,000,000, $243,000,000 were added during the two years 1920 and 1921, and $239,000,000 during the succeeding four years. In 1920 the actual addition to the debt, omitting the bookkeeping charge of government interest, was $131,000,000; in 1925 it was $31,926,617. Quite clearly then, there is substantial reduction in the rate of increase in the railway debt."

Without stating what is the intention of the government regarding the question Mr. Dunning reviewed at some length some of the problems presented in a reduction of the capitalization of the C. N. R. An examination of this whole question is now being conducted by George Gaston, an expert of New York. Mr. Dunning sets forth, however, the principal aim of such an investigation: "The object sought by the present administration is a capital structure reasonably commensurate with the earning prospects of the property."

A remarkable improvement in operating net is shown by the Canadian National for the first four months of the present year over the same period last year, according to the statement given to the Canadian Parliament this week by Charles A. Dunning, Minister of Railways and Canals. "I have spoken," he said, in the course of his speech, "with a certain optimism and a degree of confidence which I would like the House generally to share. With me it is not merely a case of the wish being father to the thought. I have been able to secure the operating results of the Canadian National lines for the first four months of the present year. They indicate net earnings of $9,689,217, as compared with $3,774,782 for the same period last year, an increase of $5,914,435. Canadian Pacific returns for the same period are not yet completely available but I am assured they also indicate greatly improved conditions. It is on this outlook that I base the confidence I would have you share. Our railways are excellent barometers, so far as business is concerned. They reflect, in accurate measure, the trade and commerce of the country. Given a reasonably good

harvest and freedom from traffic losses due to labor difficulties, it may be possible for the National Railways this year to meet their entire interest charges due the public. This, needless to say, would constitute a remarkable and welcome achievement."

Development Association to Meet at Vancouver

The program for the eighteenth annual meeting of the American Railway Development Association, to be held on June 23, 24 and 25 at the Hotel Vancouver, Vancouver, B. C., is as follows:

WEDNESDAY, JUNE 23—FORENOON SESSION

GENERAL MEETING

Addresses of Welcome by Hon. R. R. Bruce, lieutenant governor, British Columbia; Mayor L. D. Taylor, Vancouver, and Hon. E. D. Barrow, minister of agriculture.

WEDNESDAY AFTERNOON

INDUSTRIAL SECTION, INCLUDING REAL ESTATE AND SIDE TRACKS

(1) How Far Should a Railroad Co-operate With Civic Bodies in Stimulating Local Community Development?
(2) Method of Treating an Industry That Leases Railroad Property and Does Not Use It.
(3) My Idea of a Perfect Industrial Department, by A. C. Jackson, assistant industrial commissioner, Gulf Coast Lines.

AGRICULTURAL, MARKETING, IMMIGRATION AND RECLAMATION SECTIONS

(1) Agricultural Advertising, by W. H. Hill, general agricultural agent, New York Central.
(2) Trade Relations, America and South Africa, by George S. Oettle, director of publicity, South African Railways and Harbors.
(3) Policy of Interesting New Settlers, by Dr. W. J. Black, commissioner of immigration, Canadian Government Railways.
(4) Discussion—(a) Methods of Handling Land so New Settlers Will Be Reasonably Sure of Success; (b) Advertising and Other Methods of Securing New Settlers.

PUBLIC RELATIONS SECTION

(1) Results of Publication of Weekly Pamphlet, by J. F. Cobb, Jr., director of public relations, Atlantic Coast Line.
(2) General Discussion Public Relations Work.

THURSDAY, JUNE 24—FORENOON SESSION

GENERAL MEETING

Business Session.
Election of Officers.
Selection of Meeting Place.
What a Railway Development Department Develops, by Major C. G. Ommenny, development engineer, Department of Natural Resources, Canadian Pacific.
History of and Agricultural Work Among Indians in Western Canada, by Chief Buffalo Child Long Lance.

THURSDAY AFTERNOON

INDUSTRIAL SECTION, INCLUDING REAL ESTATE AND SIDE TRACK

(1) Facilities for Unloading Gasoline, Pipe Lines, Insulation, Rentals, Etc., by J. F. Muller, industrial agent, Delaware, Lackawanna & Western.
(2) Should Development Departments Be Active Politically? If so, to What Extent? by H. O. Hartzell, assistant to vice-president, Baltimore & Ohio.
(3) General Discussion of Industrial Matters.

AGRICULTURAL, MARKETING, IMMIGRATION AND RECLAMATION SECTIONS

(1) Better Marketing Through Proper Grading and Packing, by F. L. Charles, assistant freight claim agent, Baltimore & Ohio.
(2) Government Experimental Farms, by W. H. Fairfield, superintendent, Experimental Farm, Lethbridge, Alta.
(3) Discussion, Including Distribution of Experimental Farm Data.

PUBLIC RELATIONS SECTION

Public Relation Work, Methods and Results, by T. A. Hoverstad, development agent, Chicago Great Western.

THURSDAY EVENING

A. R. D. A. FAMILY DINNER

Toastmaster, John K. Matheson, manager, Vancouver Exhibition.

FRIDAY, JUNE 25—FORENOON SESSION

GENERAL SESSION

Reports of Committees.
Unfinished Business.
New Business.
Irrigation, Western Canada, by Don. H. Bark, superintendent of irrigation, Canadian Pacific.
Address by Dean R. W. Brock, acting president, University of British Columbia.

Traffic News

The Southeast Shippers' Advisory Board will hold its 14th regular meeting at the Hotel Peabody, Memphis, Tenn., on June 11.

The shipment of cantaloupes out of the Imperial Valley began on May 13, over two weeks ahead of the usual season, and 114 cars were shipped on the first day. It is estimated that 17,000 carloads containing 5,000,000 crates valued at $20,000,000, will be shipped this season.

The Louisville & Nashville and the Louisville, Henderson & St. Louis will give scholarships for outstanding agricultural accomplishments during Junior Week at the University of Kentucky, June 7 to 12; one scholarship to a club member in each of the 55 counties served by these lines.

W. L. Harvey, assistant secretary of the Trans-Missouri-Kansas Shippers' Advisory Board, has been appointed secretary of the Central Western Shippers' Advisory Board, with headquarters at Denver, Colo., to succeed A. H. Gass, who has been granted a leave of absence by the Car Service division, for services in Florida.

A total of 201 new industries were located along the St. Louis-San Francisco from January 1 to May 1. The industries include 48 oil distributing plants, 19 manufacturing plants, 16 oil-well supply houses, 12 casing-head refineries, 13 lumber and material yards, 40 miscellaneous industries, and several gins and compresses, canning factories, creameries, and other factories. The industries constitute a total property value of approximately $3,000,000.

Plans for the organization of a Pacific Northwest Traffic Managers' Conference were inaugurated at a recent meeting of the Seattle Industrial Traffic Managers in Seattle, Wash. Industrial traffic managers from Tacoma, Wash., Portland, Ore., Everett, Wash., and Bellingham were invited to discuss the proposed conference. Committees were appointed to solicit the co-operation of the traffic managers' associations to which they belong. The conference will embrace traffic managers in cities throughout the northwest.

"Dividend" Claimed for Waterway Investment

The assertion that the inland waterway system of the United States is paying, after meeting all fixed and operating charges, "an annual dividend of about $150,000,000, or between 30 and 40 per cent on the investment," as a return to the people of the nation, "in cash savings due to cheap water movement of freight," is made in a report to the chief of engineers of the U. S. Army by Brigadier General Edgar Jadwin, senior member of the board of engineers for rivers and harbors. Details of the figures are not given, but they are said to be shown by "fairly accurate computations."

The greater part of these net savings occur on the Great Lakes system, General Jadwin says, "but this is due largely to the fact that that system is as a whole completed, whereas critical sections of the remainder of the inland waterway system, both in the central valley and elsewhere, remain incomplete." The report also says:

It further appears that the policy in accordance with which the department has recommended the improvement of waterways, and with which Congress had undertaken such improvements, is justified by the results. Regarding inland waterways, our present system consists of: three major trunk lines serving the great interior valley, namely the Mississippi to St. Paul, the Missouri to Kansas City, and the Ohio to its head at Pittsburgh together with the important tributaries of these rivers, and an intracoastal waterway connecting the system with southern Louisiana and southeastern Texas; the Great Lakes system, with its harbors and connecting waterways; a series of rivers on the Atlantic and Gulf coasts, partially linked up into a single system by intracoastal waterways; the Sacramento-San Joaquin system in California; the Columbia system in Oregon and Washington; and minor waterways on the Pacific coast. The logic of the system as a

whole has been emphasized by eminent authorities on transportation and commerce. The Inland Waterways in 1923, having a mileage of about 30,000 miles, carried approximately 200,000,000 tons of freight.

Advertising the Station Agent

The advertisements of the Central of Georgia, a regular monthly feature of the daily newspapers of the towns along the lines of that road in Georgia and Alabama, are now being localized, a given advertisement being addressed to a particular locality. These advertisements, discussing general transportation problems and inviting responses from citizens, have been noticed in the *Railway Age* from time to time. The localized announcements concentrate attention on the local representative, the station agent. That for April is headed with the portrait of P. G. Moss, agent at Roanoke, Ala., a city of about 4,000 inhabitants, and is published in the Roanoke Leader. Besides describing the work of the agent and the ways in which he can serve the passenger or the shipper, the advertisement also discusses public relations in a more general way. It says: "The Central of Georgia considers itself a citizen of each community that it serves. The direct representative of the railroad at each station is the agent, and his position is one of dignity and importance. The Central of Georgia has long recognized the importance of the agent. For this position it selects men who realize that the public is entitled to courtesy and efficient service. The agent is more than a seller of tickets or receiver and deliverer of freight. He has, or can quickly obtain, almost any information the traveler may need. . . . Mr. Moss has been in the company's service for eighteen years. It is his desire to be of real service to the traveling and shipping public. The company hopes that the people of Roanoke will let Mr. Moss help them solve their shipping and traveling problems." Continuing, the announcement says: "The railroad agent can serve the shipper even before freight is delivered him for forwarding. He can quote rates and advise best routes to ship. He has available, or can obtain by telegraph, complete information as to through and special rates, train service, etc., which the average shipper does not have. If desired, he will make out the bill-of-lading, although most shippers prefer to do this for themselves. He will gladly order cars for carload shipments, having them placed for loading whenever and wherever the shipper may desire. After forwarding, he will, upon request, keep in touch with any shipment, letting the shipper know its progress and delivery at destination."

Motor Transport News

The Denver & Rio Grande Western has purchased the motor bus and truck lines of the Motor Transportation Company and the Davis Auto Truck Line operating between Grand Junction, Colo., Montrose, Delta and the North Fork branch. The railway will hold a two-thirds interest in a new company to be organized to replace the two present bus and truck operating companies.

Additional Service by B. & M.

Motor coach service from Laconia, N. H., to the Weirs, Center Harbor, Holderness and Plymouth, bringing organized transportation to Lake Winnepesaukee and Squam Lake communities which have previously been dependent almost entirely on irregular facilities, is proposed in one of two petitions for motor coach operations filed with the Public Service Commission of New Hampshire by the Boston & Maine Transportation Company. The second petition provides for a continuation of this motor coach route from Plymouth over the Daniel Webster and Whittier highways through Rumney, Wentworth, Warren and Haverhill to Woodsville and the Vermont line. Between Laconia and the Weirs, where the Laconia Street Railway has been operating a bus, the Boston & Maine petition provides for "proper restrictions to protect local transportation interests."

In this new service it is proposed to use a modern type of Yellow Coach, equipped with facilities for carrying baggage and with a maximum capacity of 29 passengers. Fares, generally speaking, will be those now in effect on the railroad, and the conditions generally will be those of a co-ordination of motor coach and rail service to provide for a through service in connection with trains.

The operation of a motor coach service between Easthampton, Mass., and Mt. Tom, making all main line connections with through trains provided by present schedules, is proposed by the Transportation Company in a petition filed with the Board of Selectmen of Easthampton. It is stated that the motor coach service, operating over the direct highway, will make stops at each of the railroad stations on the Easthampton branch,—Easthampton, Hampton Falls, and Mt. Tom. In all, 5 trips a day will be made each way, and in every possible respect the service will correspond with that of the railroad, fares being the same. White motor coaches of modern type, seating 25 passengers, will be used in this service.

The proposed inauguration of the motor coach service is intended to preserve for the communities served by the Easthampton branch organized transportation in lieu of the passenger service by rail, which the railroad has found to involve an increasing annual operating loss. Freight service by rail will not be affected by the proposed institution of the motor coach service.

I.C.C. to Investigate Motor Bus and Truck Operation

The Interstate Commerce Commission on May 25 announced that it had instituted an investigation, No. 18,300, by order dated May 21, into the general question of the operation of motor busses and motor trucks by or in connection or competition with common carriers subject to the interstate commerce act. The scope and purpose of the investigation are outlined in the order as follows:

It appearing, That the operation of motor busses and motor trucks by or in connection or competition with common carriers subject to the interstate commerce act has been steadily increasing and is likely further to increase;

It further appearing, That questions have arisen in formal cases and otherwise concerning the legality and propriety of the arrangements under which motor busses or motor trucks, or both, are operated by or in connection with common carriers subject to the interstate commerce act;

And it further appearing, That the commission should be in possession of full information regarding the operation of motor busses and motor trucks by or in connection or competition with common carriers subject to the interstate commerce act, in order that it may intelligently make recommendations to Congress respecting the regulation of such carriers by motor busses and trucks;

It is ordered, That the commission, upon its own motion, enter upon an investigation into and concerning the general question of the operation of motor busses and motor trucks by or in connection or competition with common carriers subject to the interstate commerce act, including the legality and propriety of the arrangements under which such motor busses and trucks are operated by or in connection with carriers subject to the act; also including the rates, fares, charges, etc., local, proportional, or joint, and schedules thereof, and provisions for filing and publication of such schedules by carriers subject to the act; and including the extent to which the traffic and revenues of carriers subject to the act are affected by the operation of motor busses or motor trucks, or both, by or in connection or competition with such carriers subject to the act, with a view to making such findings and entering such orders as the facts developed by such investigation may warrant, and for the purpose of making such recommendations to Congress:

All rail and water carriers subject to the interstate commerce act are made respondents to this proceeding. Hearings will be announced later.

A 32,000,000 Peso deficit on the Chilean State Railways during 1925 is reported. The government is considering the consolidation of all unamortized debts of the state railways.

Daily car loadings on the German Railways are increasing, although still considerably below the level for 1925. During the week ended March 27, the daily average loaded was 115,600, compared with 112,700 during the preceding week, and 121,300 during the corresponding week of 1925.

The South African Railways purchased 23 American and 20 German locomotives during April. Quick deliveries and competitive prices were important factors in awarding the contracts. It is estimated that the capital expenditure for new railways during the present fiscal year will total £1,000,000.

Commission and Court News

Interstate Commerce Commission

The commission has cancelled the hearing set for June 23 for the presentation of oral arguments before the entire commission in the case of the excess income of the St. Louis & O'Fallon and the Manufacturers' Railway, involving the question of a method of valuation for recapture purposes, and has assigned the case to July 1 and 2, allowing two days instead of one.

The commission has granted the petition of the valuation committee of the National Association of Railway and Utilities Commissioners to intervene in the case involving the excess income of the St. Louis & O'Fallon and the Manufacturers' Railway, which is to be argued before the commission on July 1 and 2.

Alleged Discrimination Against Negro Passengers

The commission has dismissed a complaint filed by E. Crosby against the southern roads on the ground that his allegations of unreasonable regulations affecting persons of the colored race in favor of persons of the white race, have not been shown with sufficient definiteness to warrant the entry of an order. The commission also found that it had no jurisdiction to award punitive or exemplary damages. However, the report said, in conclusion: "The evidence strongly points to unsatisfactory conditions in several instances. The coach accommodations do not seem to be in all cases equal in appointment to those furnished the white patrons, and the indications are that some of the station facilities may not be all that should be provided in order to avoid the charge of undue prejudice. Particular attention is called to the toilet conditions which apparently exist at Huntsville, Florence, and Tuscumbia, and if it is found that complainant's statements in this respect are well founded, those conditions should be promptly corrected. * * * Before any party can recover damages under the interstate commerce act he must allege and show not merely the wrong of the carrier but that the wrong has in fact operated to his injury."

Freight Rates on Furniture to Be Investigated

An investigation of freight rates on furniture between all points in the United States has been instituted by the commission. The commission dismissed a complaint filed by the National Council of Furniture Manufacturers, finding that the rates on numerous articles of furniture in Official Classification have not been shown to be unreasonable, but stating that the record discloses a situation as to furniture rates which justifies the commission's attention. The report by Commissioner E. I. Lewis says in part:

Furniture is rated one class lower in both the southern and western classifications than it is in the official classification, and there is a substantial movement of furniture in the southern and western territories on commodity rates lower than the third-class rates.

Evidence was submitted which shows that, except where commodity rates prevail in official territory, the applicable second-class rates from points in that territory, are, generally speaking, relatively higher than the rates applicable from competitive producing points in southern and western territories to common destinations in official territory. It has been here shown that a large volume of furniture moves in official territory on second-class rates, yet there are numerous exceptions to the classification in central territory under which third-class or even lower rates are applied. Under the Illinois classification there is a disparity between the rates from the Mississippi River to Illinois points and the rates to points farther east.

Upon further argument the commission affirmed the findings in a previous report that the railroads had justified a proposed revision of rates on furniture from southern manufacturing points to trunk line and New England territories.

Equipment and Supplies

Locomotives

THE UNION TERMINAL is inquiring for one six-wheel switching locomotive.

THE ILLINOIS CENTRAL has ordered 20 Mountain type locomotives from the American Locomotive Company. Inquiry for this equipment was reported in the *Railway Age* of April 24.

Freight Cars

THE CHICAGO, ROCK ISLAND & PACIFIC is asking for bids for rebuilding 188 gondola cars.

THE NATIONAL RAILWAYS OF MEXICO have under consideration the purchase of about 6,000 freight cars.

THE ARARAQUARA RAILWAY (Brazil) is inquiring through the car builders for 20 pairs of arch bar trucks.

THE CHICAGO & NORTH WESTERN is inquiring for 25 caboose car underframes and for 500 stock car bodies.

THE ILLINOIS CENTRAL has ordered four 20-cu. yd. air dump cars from the Differential Steel Car Company.

THE AMERICAN STEEL & WIRE COMPANY, Pittsburgh, Pa., has ordered 11 30-yd. extension side dump cars from the Clark Car Company.

THE INTERNATIONAL RAILWAYS OF CENTRAL AMERICA have ordered 250 box cars of 25 tons' capacity from the Gregg Company.

THE T. J. FOLEY CONSTRUCTION COMPANY, Pittsburgh, Pa., has ordered eight 30-cu. yd. lift door air dump cars, from the Koppel Industrial Car & Equipment Company.

THE WEST PENN CEMENT COMPANY, Pittsburgh, Pa., has ordered three 20-cu. yd. lift door air dump cars from the Koppel Industrial Car & Equipment Company.

THE BOSTON & MAINE has placed an additional order for two extension side dump cars with the Clark Car Company. A previous order for six cars was reported in the *Railway Age* of May 22.

THE SOUTH PORTO RICO SUGAR COMPANY has ordered 30 cane cars of 30 tons' capacity, from the Magor Car Corporation. Inquiry for 100 cane cars was reported in the *Railway Age* of April 10.

Passenger Cars

THE ILLINOIS CENTRAL is converting 45 passenger cars for electric service.

THE INTERNATIONAL RAILWAYS OF CENTRAL AMERICA have ordered two chair cars from the Wason Manufacturing Company.

THE SEABOARD AIR LINE is inquiring for from 10 to 12 steel dining cars. This is in addition to the company's inquiry for 20 coaches which was reported in the *Railway Age* of May 22.

Machinery and Tools

THE NEW YORK CENTRAL is inquiring for one 20-ton locomotive crane.

THE NEW YORK CENTRAL is inquiring for three 20-ton gantry cranes.

THE DELAWARE & HUDSON has ordered four 36-in. Defiance heavy duty drills from Manning, Maxwell & Moore, Inc.

THE PENNSYLVANIA has ordered two 1½-in. National heavy duty forging machines from Manning, Maxwell & Moore, Inc.

THE ILLINOIS CENTRAL has ordered nine overhead cranes for its Paducah, Ky., shops from the Shaw Electric Crane Company.

THE CHESAPEAKE & OHIO has ordered one Micro air brake pump internal cylinder grinder from Manning, Maxwell & Moore, Inc.

THE CHARLESTON & WESTERN CAROLINA has ordered one 2-ton Chambersburg steam hammer from Manning, Maxwell & Moore, Inc.

THE WABASH has ordered three 10-ton, 59-ft. span Shaw electric traveling cranes and one 5-ton, 38-ft. span Shaw electric traveling crane from Manning, Maxwell & Moore, Inc.

Iron and Steel

THE ATLANTIC COAST LINE is inquiring for 100 tons of steel for bridges.

THE SOUTHERN PACIFIC is expected to order 24,000 tons of rails within the next few days.

THE NEW YORK CENTRAL has ordered 450 tons of steel for two bridges in New York State.

THE NEW YORK, NEW HAVEN & HARTFORD has ordered 400 tons of steel for locomotive shops at Readville, Mass.

THE WABASH has ordered 1,700 tons of structural steel for a bridge at Decatur, Ill., from the American Bridge Company.

THE WEST SHORE has ordered 1,700 tons of steel for three bridges near Schenectady, N. Y., from the American Bridge Company.

THE ATCHISON, TOPEKA & SANTA FE has placed an order for 11,300 tons of structural steel for bridges with the American Bridge Company.

THE CHICAGO & NORTH WESTERN has placed an order for 1,900 tons of structural steel for bridges with the American Bridge Company.

THE SOUTHERN is inquiring for 3,000 tons of structural steel for bridge work. This company has ordered 350 tons of steel for a repair shop at Knoxville, Tenn.

THE CHILEAN STATE RAILWAYS have placed an order for 5,000 tons of 100-lb. rail, 1,000 tons of 80-lb. rail and 54 tons of accessories with the United States Steel Products Company.

THE CHESAPEAKE & OHIO has ordered 12,000 tons of rails from the Illinois Steel Company, 12,000 tons from the Inland Steel Company and 6,000 tons from the Bethlehem Steel Company. Track fastenings amounting to approximately 15 per cent of the tonnage were also divided.

THE ROYAL STATE RAILWAYS OF SIAM will receive bids until 14 o'clock, September 15, at the office of the Administration of the Royal State Railways of Siam, Bangkok, for the supply of superstructures of steel railway bridges. Specifications may be obtained from C. P. Sandberg, New York, on payment of $6.

Signaling

THE SOUTHERN PACIFIC has placed an order with the National Safety Appliance Company for train control apparatus necessary for equipping 52 locomotives which will be operated on the second division of train control, between Tracy, Cal., and Fresno.

THE PENNSYLVANIA has ordered from the Union Switch & Signal Company Style S-8 electro-mechanical interlocking apparatus for use in connection with revising the existing interlocking at Macksville, Ind. The switch indicating levers are to be equipped with a detector magnet on the latch for advance switch locking. The Pennsylvania has also ordered five Style S-8 units to be added to an existing 20-lever S. & F. machine at "EJ" Tower, Clairton, Pa.

Supply Trade News

The Minwax Company, Inc., has removed its office from 10 East Huron street to 230 East Ohio street, Chicago.

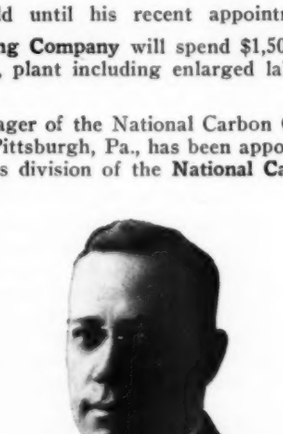
R. E. Lounsbury has been appointed industrial sales engineer of **S. F. Bowser & Co., Inc.,** at Albany, N. Y.

L. O. Stratton, who has been appointed district manager of the **Buda Company,** with headquarters at St. Louis, Mo., was born at Guide Rock, Neb., and entered railway service in the mechanical department of the Union Pacific at Grand Island, Neb., in August, 1912. He held various positions in this department until January, 1916, when he was placed in charge of all motor car repairs on the Oregon Short Line at Pocatello, Idaho. On December 1, 1918, he was appointed district manager of Mudge & Co., with headquarters at San Francisco, Cal., and was later transferred to Denver. On August 1, 1922, he resigned to enter the employ of the Buda Company as representative at Salt Lake City, Utah, which position he has held until his recent appointment.

L. O. Stratton

The Timken Roller Bearing Company will spend $1,500,000 to expand its Canton, Ohio, plant including enlarged laboratory and research facilities.

W. H. Haile, district manager of the National Carbon Company, with headquarters at Pittsburgh, Pa., has been appointed manager of the railway sales division of the **National Carbon Company, Inc.,** and the **Prest-O-Lite Company, Inc.,** with headquarters at Cleveland, Ohio. He was born at Galena, Ill., on March 8, 1892, and was educated at the University of Illinois. After several years in mercantile lines and after army service during the war, he entered the employ of the Union Carbide & Carbon Co., the holding company of the National Carbon and Prest-O-Lite companies, as salesman for the Union Carbide Sales Company, Chicago. A year ago, after holding the position of district sales manager of that company, he was appointed district manager of the Pittsburgh office of the National Carbon Company.



W. H. Haile

George Sealy has been made chairman of the board of directors of the **International Creosoting & Construction Company,** to succeed John Sealy, deceased. **R. J. Calder** continues as president of the company. **J. D. Latimer,** manager of the tie and timber department, has been promoted to vice-president and general manager. **H. A. West,** secretary and treasurer, has been promoted to vice-president.

Redmond F. Kernan has resigned as an officer and director of the **Regan Safety Devices Company, Inc.,** New York, and **Joseph Beaumont,** vice-president and sales manager, has been elected director to fill the unexpired term.

The Chicago Steel Tank Company has leased 213,000 sq. ft. of ground with option to purchase at 6600 South Narragansett avenue, Chicago, on which it plans the erection of a plant which will be ready for occupancy in the fall.

Francis J. Fox, formerly of the Griffin Wheel Company and more lately of the Yellow Truck & Coach Manufacturing Company, has joined the organization of the **Mack-International Motor Truck Corporation,** with headquarters in Chicago.

The industrial relations staff of Curtis, Fosdick & Belknap has removed from 61 Broadway to 165 Broadway, New York, and in future under the name of the **Industrial Relations Counselors, Inc.,** will continue the research and counseling service on matters of personnel administration heretofore conducted as a department of Curtis, Fosdick & Belknap.

A. E. Pratt, who has been appointed in charge of the railway sales of Duco and other finishing materials of **E. I. du Pont de Nemours & Co.,** with headquarters at Parlin, N. J., as was announced in the *Railway Age* of May 15, was born at West Scarborough, Me., on December 11, 1887, and was educated at Mount Union College and Western Reserve University. After leaving college he spent two years in the maintenance of way department and signal construction on the western lines of the Erie. In October, 1909, he was appointed supervisor of signals of the Buffalo Creek, at Buffalo, N. Y. In January, 1913, he returned to the Erie and served as general signal foreman of construction while automatic signals were being installed on four divisions. In November, 1916, he was appointed signal supervisor of the Buffalo division of the Erie and in April, 1917, was transferred to the Kent division, with headquarters at Marion, Ohio. On March 1, 1918, he resigned to go as sales engineer in the railroad department of the National Carbon Company. Early in 1922 Mr. Pratt was promoted to assistant manager and in January, 1923, was appointed manager of railway sales of the National Carbon Company, Inc., and the Prest-O-Lite Company, Inc., which position he held at the time of his recent appointment.

A. E. Pratt

Locomotive Production in April

The Department of Commerce has prepared the following tabulation of shipments of railroad locomotives from the principal manufacturing plants:

Year and Month 1923	Shipments					Unfilled orders, end of month				
		Domestic		Foreign			Domestic		Foreign	
	Total	Steam	Electric	Steam	Electric	Total	Steam	Electric	Steam	Electric
January	98	41	12	43	2	414	322	44	33	15
February	88	69	7	9	3	414	318	51	33	12
March	117	88	13	14	2	461	324	51	71	15
April	101	78	14	9	0	490	343	41	77	29
Total (4 months)	404	276	46	75	7	..	..	..	..	..
1926										
January	121	96	11	14	0	653	506	53	52	42
February	163	101	22	38	2	572	442	60	30	40
March	162	146	11	4	1	780	635	50	54	41
April	151	122	12	1	16	713	580	44	60	29
Total (4 months)	597	465	56	57	19	..	..	..	..	..

Obituary

J. B. Struble, who represented the Union Switch & Signal Company for many years at San Francisco, Cal., died suddenly on May 22, at San Francisco.

Trade Publications

CRANES.—Electric and hand-power traveling cranes, cranes for freight handling, and the Whiting portable car hoist are illustrated in three, four-page folders which have been issued by the Whiting Corporation, Harvey, Ill.

ANTI-SLIP TREADS.—A leaflet descriptive of Feralun anti-slip treads and showing their structural application to several types of coach steps has been issued by the American Abrasive Metals Company, 50 Church street, New York.

ZEOLITE WATER SOFTENER.—The Graver Corporation has issued Bulletin No. 509, a 12-page pamphlet describing the Graver Zeolite water softener. The bulletin outlines the process and gives a complete description of the Graver equipment, supplemented by sectional illustrations and views of installations.

TRAIN INDICATORS.—National train indicators, as designed for use in the Pennsylvania Station and the Grand Central Terminal, New York, and other stations, both large and small, throughout the country, are described and illustrated in an attractive 38-page catalog, No. 4, which has been issued by the Watson-Stillman Company, New York. The information as to the time and place of departure and destination of trains on these indicators is visible at a distance requisite to the needs of the largest station.

VERTICAL ENGINES.—Bulletins No. 302B, 601 and 801 have been issued by Engberg's Electric & Mechanical Works, St. Joseph, Mich. Horsepower tables for vertical enclosed self-oiling engines are given in Bulletin No. 302B, which is a supplement to Bulletin No. 302 in which the Engberg engines are fully described and illustrated. Direct and alternating current generators and their application to internal combustion engines are fully described and illustrated in Bulletin No. 601. Bulletin No. 801 covers Engberg alternating current, direct-connected generating sets.

DIRECT-INJECTION OIL ENGINES.—"Direct injection oil engines for all purposes," is the title of a new publication just issued by the Ingersoll-Rand Company, 11 Broadway, New York. The cover, which is printed in colors, illustrates the major title by portraying the Ingersoll-Rand oil engines as applied to railway, marine, powerhouse, industrial and building applications. The text matter consists of technical data and details of "PO" oil engines of 55, 110 and 150 b.hp. sizes and is profusely illustrated by illustrations of plant layouts, installation views, diagrams and engine details.

ELECTRICAL MACHINERY CATECHISM.—A publication of this name issued by Fairbanks-Morse and Co., Chicago, presents in a simple and understandable manner, the fundamental principles of electricity, magnetism and electrical measurements and the important theoretical and practical features of the more common types of a.c. and d.c. motors, generators and control equipment. The material is arranged in question and answer form and is intended primarily for those who are not familiar with electrical terminology. The text matter is illustrated by many drawings and circuits as well as by a number of examples of Fairbanks-Morse machinery. While in some cases the details of Fairbanks-Morse machines are discussed, more complete descriptions are available in other bulletins published by this company.

THE ATCHISON, TOPEKA & SANTA FE, in conjunction with the inauguration of fast schedules on trans-continental lines in October, will place a lounge car between the sleeping cars and the diner, so that persons waiting for seats will not be compelled to stand in the aisle and on the platform of the diner.

DANIEL WILLARD, president of the Baltimore & Ohio, has been elected president of the board of trustees of Johns Hopkins University, Baltimore.

Railway Construction

ATLANTIC COAST LINE.—This company has authorized the following work: Construction of passing tracks and sidings to cost $1,685,000; station and station facilities, $354,000; signals and interlocking plants, $159,000; metal bridge reconstruction, $292,000; station house and other roadway facilities, $26,000; water stations, $75,000; telephone and telegraph, $110,000; storehouse facilities, $32,000; improvements to mechanical facilities, $2,706,000; equipment, $57,000.

BOSTON & MAINE.—This company has authorized the construction of a $43,000 restaurant building at Billerica, Mass., and a contract for a portion of the work, to cost approximately $26,000, has been awarded to the Edwards & Monahan Company, Lowell, Mass.

CHICAGO & EASTERN ILLINOIS.—Bids will be asked within a few days for the construction of an engine terminal at Evansville, Ind., including a roundhouse and shop buildings.

CHICAGO GREAT WESTERN.—A contract has been awarded to the T. S. Leake Construction Company, Chicago, for the construction of a station at Villa Park, Ill.

CHICAGO, ROCK ISLAND & PACIFIC.—A contract has been awarded to Fairbanks, Morse & Co., Chicago, for the construction of a coaling station at Council Bluffs, Iowa, reported in the *Railway Age* of March 13.

CHICAGO, ROCK ISLAND & PACIFIC.—A contract has been awarded to the T. S. Leake Construction Company, Chicago, for the construction of a 20-stall roundhouse at Burr Oak, Ill., reported in the *Railway Age* of May 8.

ILLINOIS CENTRAL.—Contracts have been awarded for the construction of three water stations on the new line between Edgewood, Ill., and Fulton, Ky., as follows: to the W. J. Zitterel Company, Webster City, Iowa, for a water station at Bluford, Ill.; to the Bates & Rogers Construction Co., Chicago, for a water station at Edgewood; and to the Railroad Water & Coal Handling Co., Chicago, for a water station at Xenia. Bids are being received for the construction of a water station at Fancy Farm, Ky.

KANSAS CITY TERMINAL.—Plans are being prepared for the construction of a reinforced concrete and steel viaduct over the railroad tracks at Oak street in Kansas City, Mo., at a cost of $350,000.

LOUISVILLE, HENDERSON & ST. LOUIS.—Plans are being prepared for the replacing of the steel draw span bridge over the Green river at Spottsville, Ky., and the raising of the present piers and abutments, at a cost of $50,000.

PACIFIC GREAT EASTERN.—A contract has been awarded to the Georgia Construction Company, Vancouver, B. C., for realinement work north of Lillooet, B. C., involving the removal of 342,000 yards of earth. The realinement will shorten the line and eliminate the highest wooden bridge on the railway.

ST. LOUIS CONNECTING.—This company has been authorized by the Interstate Commerce Commission to construct a line from a connection with the Pittsburgh, Cincinnati, Chicago & St. Louis (Pennsylvania) from Collinsville, Ill., to another connection with the P. C. C. & St. L. line about 2 miles west of St. Jacob; total length, 9.2 miles; estimated cost, $1,954,000. Authority has been granted for the issue of $100,000 capital stock to be purchased by the Pennsylvania and the proceeds used toward construction. Additional funds necessary to construction will be advanced by the Pennsylvania. The new line will be a second main track for the P. C. C. & St. L. offering a shorter route with easier gradients between the points named.

WABASH.—A contract has been awarded to the T. S. Leake Construction Company, Chicago, for the construction of an oil-house at Moberly, Mo., reported in the *Railway Age* of May 1.

Railway Financial News

ATCHISON, TOPEKA & SANTA FE.—*Lease.*—This company has applied to the Interstate Commerce Commission for authority to make a new lease of the property of the Garden City, Gulf & Northern.

ATCHISON, TOPEKA & SANTA FE.—*Acquisition.*—This company has applied to the Interstate Commerce Commission for authority to acquire control of the New Mexico Central by purchase of its entire capital stock at $700,000 and by lease. The application states that the line has not been able to make sufficient money to cover operating expenses "and if continued as an independent company the time would come when the operation of its line would have to be abandoned."

BLACK MOUNTAIN.—*Abandonment.*—This company has applied to the Interstate Commerce Commission for authority to abandon that portion of its line from Eskota, N. C., to Pensacola, 12 miles.

BOSTON & MAINE.—*Re-organisation Plan.*—Homer Loring, chairman of the executive committee, testified at the hearing before Examiner DeVoe of the Interstate Commerce Commission at Washington on May 24 on the application for authority to issue $13,000,000 of prior preference stock and $43,000,000 of bonds in connection with the re-organization plan.

The Massachusetts Department of Public Utilities announced on May 24 its approval of the re-organization plan and authorized the issuance of $13,000,000 new prior preference stock and $37,531,000 refunding bonds. In its petition the railroad asked for the right to issue $43,522,600 in bonds. Holders of the securities would agree only to the amount of $37,531,000, so the order of the utilities department was changed accordingly. The department in authorizing the stock issue stipulated that the funds derived from the sale of stock be expended with the approval of the state authorities. The proceeds of sale of the stock are to be used in the building of terminal yards at Boston and Lowell Junction, for new locomotives, additional trackage, construction of general offices at Cambridge, improvement of the Mystic coal plant, and the purchase of gasoline rail-cars and trailers.

CENTRAL OF NEW JERSEY.—*Valuation.*—The Interstate Commerce Commission has announced a hearing on this company's tentative valuation at Washington on June 2 before Examiner Kelley.

1925 *Earnings.*—Annual report for 1925 shows net income after interest and other charges of $3,596,118 equivalent to $13.10 a share on the capital stock. Net income in 1924 was $6,187,840 or $22.55 a share. Selected items from the income statement follow:

CENTRAL OF NEW JERSEY

	1925	1924	Increase or decrease
Average mileage operated	690.90	692.19	—1.29
Railway operating revenues	$55,092,100	$55,466,963	—$374,863
Maintenance of way	$6,300,306	$6,058,276	$242,030
Maintenance of equipment	12,113,409	9,819,916	2,293,493
Transportation	20,798,503	21,640,714	— 842,210
Total operating expenses	$41,388,145	$39,652,657	$1,735,488
Operating ratio	72.12	71.48	3.64
Net revenue from operations	$13,703,955	$15,814,306	—$2,110,351
Railway tax accruals	4,540,580	4,513,237	27,343
Railway operating income	$9,134,202	$11,253,588	—$2,119,386
Equipment rents—Dr. bal.	744,829	516,744	228,085
Joint facility rents—Cr. bal.	635,911	463,593	172,318
Net railway operating income	$7,753,462	$10,273,250	—$2,519,788
Non-operating income	1,838,611	2,026,122	—187,510
Gross income	$9,592,073	$12,299,372	—$2,707,299
Rent for leased roads	2,312,238	2,327,831	—15,592
Interest on funded debt	3,079,289	3,068,939	10,351
Total deductions from gross income	$5,995,956	$6,111,532	—$115,577
Net income	$3,596,118	$6,187,840	—$2,591,722

CHICAGO & EASTERN ILLINOIS.—1925 *Earnings.*—Annual report for 1925 shows net income after interest and other charges of

(*Continued on page* 1462)

Annual Report

Pere Marquette Railway Company

Detroit, Mich., March 31, 1926.

To the Stockholders:

The Board of Directors respectfully submit herewith their report of the affairs of the Pere Marquette Railway Company for the fiscal year ended December 31, 1925.

Income Account

	Year Ended December 31, 1925	Year Ended December 31, 1924	Increase or Decrease
Railway Operating Revenues	$42,710,690.31	$41,797,914.64	$912,775.67
Railway Operating Expenses	30,725,256.35	30,562,930.01	—237,673.66
Net Revenue from Railway Operations	$11,985,433.96	$10,834,984.63	$1,150,449.33
Railway Tax Accruals	$2,064,675.38	$2,028,020.37	$36,655.01
Uncollectible Railway Revenues	18,330.03	7,803.49	10,526.54
Equipment Rents—Net	459,833.75	919,635.30	—459,801.55
Joint Facility Rents—Net	672,374.34	678,697.29	—6,322.95
Total	$3,215,213.50	$3,634,156.45	—$418,942.95
Net Railway Operating Income	$8,770,220.46	$7,200,828.18	$1,569,392.28
Other Income—Net	$288,642.44	$406,052.84	—$117,410.40
Balance Before Deduction of Interest	$9,058,862.90	$7,606,881.02	$1,451,981.88
Interest on Bonds	$2,197,960.00	$2,197,960.00	.....
Interest on Equipment Notes	404,880.00	445,246.17	—$40,366.17
Miscellaneous Interest	15,640.47	28,652.58	—13,012.11
Total Interest Accruals	$2,618,480.47	$2,671,858.75	—$53,378.28
Surplus	$6,440,382.43	$4,935,022.27	$1,505,360.16

Ratio of Each Class of Operating Expenses and Taxes to Operating Revenues

Maintenance of Way and Structures	11.36	12.16	—.80
Maintenance of Equipment	21.32	20.80	.52
Traffic	1.50	1.51	—.01
Transportation	34.95	36.80	—1.85
Miscellaneous Operations	.32	.33	—.01
General	2.81	2.97	—.16
Transportation for Investment—Credit	.32	.49	.17
Total	71.94	74.08	—2.14
Ratio of Taxes to Operating Revenues	4.83	4.85	—.02
Total	76.77	78.93	—2.16

Long Term Debt

The following changes in Long Term Debt occurred during the year ended December 31, 1925:

Notes Nos. 2691 to 3138, inclusive, and 3139 to 3362, inclusive, for $1,000.00 each, issued under Equipment Trust Agreement No. 63, dated January 15, 1920, were retired at maturity on January 15, 1925, by cash payment of $672,000.00 made to the Guaranty Trust Company of New York, Trustee.

Mortgages held by William D. LaPoint and Dennis LaPoint, for $40,000.00 and $7,000.00, respectively, on certain land purchased at Erie, Mich., for yard purposes, were discharged during the year.

Securities Acquired and Disposition of Securities Owned

During the year the Company received from the Flint Belt Railroad Company its certificates of capital stock to the face amount of $42,500.00, in payment of cash advances made to that Company prior to January 1, 1925. This, together with $692,600.00 previously reported, makes a total of $735,100.00 face amount of the capital stock of the Flint Belt Railroad Company owned by the Pere Marquette Railway Company as of December 31, 1925.

There were received from the Toledo Terminal Railroad Company as of May 1, 1925, its First Mortgage 4½% Bonds amounting to $107,000.00 These bonds were accepted at a discount of 8% in payment of certificates of indebtedness amounting to $98,440.00, which were received from the Toledo Terminal Railroad Company prior to 1913, and which were carried in the accounts of the Pere Marquette Railway Company at a nominal value of $1.00. These bonds were recorded on the books of the Company at 92% of their face value or $98,440.00. Additional Toledo Terminal Railroad Company's certificates of indebtedness amounting to $33,560.00 were retired by cash payment on October 1, 1925.

On January 1, 1925, the Company owned $500,000.00 face amount of United States Treasury 4% Certificates which matured March 15, 1925, and which were redeemed on that date. In order to increase the interest rate on current cash, the Company purchased during the year additional Government securities to the face amount of $3,000,000.00 at a total cost of $2,996,156.25. These securities mature June 15, 1926, and draw interest at the rate of 3¼% per annum, and all of them were held by the Company as of December 31, 1925.

Dividends

Quarterly dividends at the rate of 1¼% were regularly paid on the Prior Preference Stock and the Preferred Stock. These payments were made out of surplus and amounted to $560,000.00 on the Prior Preference and $621,450.00 on the Preferred.

Quarterly dividends at the rate of 1% were also regularly paid on the Common Stock. These payments were likewise made out of surplus and amounted to $1,801,840.00.

Profit and Loss

The Profit and Loss surplus carried forward from December 31, 1924, amounted to $15,315,232.32. During the year there was a credit from Income of $6,440,382.43, and there were charged to Profit and Loss dividends declared out of surplus as follows:

Prior Preference Stock 5%	$ 560,000.00
Preferred Stock 5%	621,450.00
Common Stock 4%	1,801,840.00
Total	$2,983,290.00

There was also charged to Profit and Loss during the year an amount of $98,410.54 on account of Retired Road and Equipment, representing book adjustments due to tracks and other property retired and not replaced.

Other miscellaneous items handled through this account during the year resulted in a net credit to Profit and Loss of $9,272.26.

The credit balance in Profit and Loss as of December 31, 1925, was $18,683,186.47, an increase during the year of $3,367,954.15. See table on page 21.

Additions and Betterments

During the year ended December 31, 1925, charges amounting to $1,414,586.82 were made to "Investment in Road" and $270,084.14 to "Investment in Equipment"; the net charge to "Investment in Road and Equipment" for the year being $1,684,670.96.

Included in the charges to "Investment in Equipment" for the year ended December 31, 1925, are the following items, viz.:

$25,885.13, representing the cost of 12 caboose cars built during the year at Pere Marquette Railway Company Shops.

$1,582.90, representing the cost of two Car Ferry Tenders built during the year at Pere Marquette Railway Company Shops.

Locomotive Crane LC9 was restenciled MC4 and received additions in the amount of $3,026.62.

$300,522.83, representing the increase in the aggregate ledger value of 457 units of freight equipment and 2 units of work equipment rebuilt to August 1, 1925, the cost of which constituted the major portion of the value as renewed. This equipment was retired in the accounts according to accounting requirements of the Interstate Commerce Commission prevailing to August 1, 1925, in order that it might be set up in the records at its appraised value after rebuilding. The aggregate ledger value of the retired freight equipment units was $285,479.58; the appraised value after rebuilding aggregated $584,955.48. The aggregate ledger value of the retired work equipment units was $546.34; the appraised value after rebuilding aggregated $1,593.27.

New Equipment

During the year ended December 31, 1925, the following equipment was constructed or converted at Pere Marquette Railway Company Shops, viz.:

Units	Car No.
12	Cabooses A-617 to A-628, inclusive
2	Car Ferry Tenders CFT-109 and CFT-110
45	Store Supply Cars S-27 to S-68, inclusive and S-70 to S-72, inclusive
1	Magnet Crane M. C. 4

FRANK H. ALFRED,
President.

By Order of the Board of Directors,
Edward N. Brown,
Chairman.

[Advertisement]

Railway Financial News

(*Continued from page* 1460)

$161,968 as compared with a deficit in 1924 of $568,447. Selected items from the income statement follow:

CHICAGO & EASTERN ILLINOIS

	1925	1924	Increase or decrease
Average mileage operated	945.13	945.13	.....
Railway operating revenues	$26,574,508	$26,068,789	$505,719
Maintenance of way	$2,654,757	$2,604,958	$49,799
Maintenance of equipment	7,740,583	7,827,155	—86,573
Transportation	9,904,912	10,408,218	—503,306
Total operating expenses	$22,083,610	$22,453,256	—$369,646
Operating ratio	83.10	86.13	—3.03
Net revenue from operations	$4,490,898	$3,615,533	$875,366
Railway tax accruals	1,395,000	1,445,000	—50,000
Railway operating income	$3,084,256	$2,155,917	$928,338
Hire of freight cars—Dr. bal.	566,942	202,153	364,789
Joint facility rents—Dr. bal.	336,181	487,472	—151,291
Net railway operating income	$2,148,267	$1,467,259	$681,008
Non-operating income	409,234	386,119	23,115
Gross income	$2,557,501	$1,853,378	$704,123
Rent for leased roads	150,692	151,754	—1,062
Interest on funded debt	2,196,704	2,223,749	27,044
Total deductions from gross income	$2,395,534	$2,421,825	—$26,292
Net income	$161,968	Def. $568,447	$730,415
Disposition of net income—			
For sinking fund	$177,500	$177,500	.....
Interest on bonds in sinking fund	37,752	31,604	6,149
Surplus for year carried to profit and loss	Def. $53,285	Def. $777,551	—$724,269

CHICAGO, BURLINGTON & QUINCY.—*Valuation.*—Hearings on the tentative valuation report of the Interstate Commerce Commission have been assigned to begin on July 8 at Chicago before Examiner Woodrow.

CHICAGO, INDIANAPOLIS & LOUISVILLE.—*Bonds.*—This company has applied to the Interstate Commerce Commission for authority to sell $1,000,000 of first and general mortgage 5 per cent bonds, to Harris, Forbes & Co., and Potter & Co., of New York, at 95.5.

DENVER & SALT LAKE RAILWAY.—*Reorganization Plan.*—This company has applied to the Interstate Commerce Commission for authority for the issuance of new securities pursuant to a reorganization plan, including $2,500,000 of 6 per cent first mortgage bonds, $11,000,000 of income mortgage bonds with interest limited to 6 per cent, and 50,000 shares of common stock of no par value. These are to be used to acquire the property of the old Denver & Salt Lake Railroad, which has been in receivership. The company also applied for a certificate authorizing it to acquire and operate the line of the old company. It is stated that the completion of the so-called Moffat tunnel through the continental divide, on this line, "will remove serious obstacles to the present operations, eliminating all four per cent grades and shortening substantially distances, so that a larger volume of business can be handled and a shorter line from Denver to Salt Lake City made possible by certain connections and extensions yet to be made."

GREAT NORTHERN.—*Bonds.*—This company has asked the Interstate Commerce Commission to vacate its order of January 26, authorizing the issuance of $5,000,000 of general mortgage 5 per cent bonds, on the ground that the company has decided that the transactions for the carrying out of which it was sought cannot advantageously be carried out.

HAMPDEN RAILROAD.—*To Be Sold.*—William E. Gilbert, receiver, has announced that bids will close on June 3 for the sale of this property. The line is 14 miles long and extends from Springfield, Mass., to a connection with the Central Massachusetts line of the Boston & Maine at Bondsville in Palmer, Mass. It was built under the regime of Charles S. Mellen about 1913, and was intended to enable the New York, New Haven & Hartford and the Boston & Maine to establish a new through line between New York and Boston but was never operated.

HOUSTON & TEXAS CENTRAL.—*Tentative Valuation.*—The Interstate Commerce Commission has issued a tentative valuation report placing the final value for rate-making purposes of the carrier property owned at $31,970,431, as of 1918, and that of the property used at $34,128,890. The outstanding capitalization as of valuation date was $22,125,000 and the investment in road and equipment, as stated in the books, was $41,099,630. The report readjusts this to $40,581,540.

ILLINOIS CENTRAL.—*Equipment Trust.*—Series M. Equipment trust certificates authorized by the Interstate Commerce Commission, as noted briefly in the *Railway Age* of May 22, in the amount of $5,018,000, are in connection with equipment including 3,050 freight train cars and 8 passenger train cars having a total approximate cost of $7,172,100.

INDIANA HARBOR BELT.—*Notes.*—This company has applied to the Interstate Commerce Commission for authority to issue $2,000,000 of two-year 5½ per cent promissory notes.

INLAND WATERWAYS CORPORATION.—*Acquisition.*—The Interstate Commerce Commission has been asked to authorize the acquisition for $500,000 of the stock of the Warrior River Terminal Company, which recently asked for authority to acquire part of the line of the Ensley Southern for the purpose of extending the terminal facilities of the government's Warrior river barge line to Ensley, Ala., and afford an entrance to Birmingham.

LEHIGH VALLEY.—*Tentative Valuation.*—The Interstate Commerce Commission has issued a tentative valuation report placing the final value for rate-making purposes of the common-carrier property owned at $90,367,116 and that of the property used at $200,618,202, as of 1917, including $110,252,202 for the property leased. The outstanding capitalization as of valuation date was $144,138,000 and the investment in road and equipment as stated in the books was $86,690,663, but the report says this should be readjusted to $91,079,608. The cost of reproduction new of the carrier property exclusive of land is given as $104,226,162 for the property owned and $209,525,207 for the property used, while the cost of reproduction less depreciation is stated as $71,965,490 for the property owned and $157,385,387 for that used. The Lehigh Valley owned securities of other companies of a par value of $87,783,696, and a book value of $87,407,846. It also had cash on hand and materials and supplies in the amount of $12,314,552, of which $5,366,000 was included in the final value.

MISSOURI-KANSAS-TEXAS OF TEXAS.—*Tentative Valuation.*—The Interstate Commerce Commission has served a tentative valuation report placing the final value for rate-making purposes of the carrier property owned and used as of 1918 at $40,834,000, and that of the property used at $51,563,568. The outstanding capitalization was $73,611,859 and the book property investment was $56,620,827.

NEW ORLEANS, TEXAS & MEXICO.—1925 *Earnings.*—Annual report for 1925 shows net income after interest and other charges of $2,514,164 equivalent to $16.76 a share on the capital stock. Net income in 1924 was $2,763,956 or $18.42 a share. Selected items from the income statement follow.

NEW ORLEANS, TEXAS & MEXICO

	1925	1924	Increase or Decrease
Average mileage operated	921.74	921.74	.....
Railway operating revenues	$14,718,818	$14,251,547	$467,272
Maintenance of way	$2,216,018	$2,480,419	—$264,401
Maintenance of equipment	2,401,637	1,879,741	521,895
Transportation	4,161,456	3,588,280	573,176
Total operating expenses	$9,828,640	$8,846,612	$982,028
Operating ratio	66.78	62.07	4.71
Net revenue from operations	$4,890,178	$5,404,935	—$514,757
Railway tax accruals	747,930	727,139	20,791
Railway operating income	$4,124,145	$4,672,197	—$548,052
Hire of freight cars.....Dr. Bal	24,156	495,267	—471,111
Joint facility rents.....Dr. Bal	268,606	302,767	—34,161
Net railway operating income	$3,757,859	$3,945,091	—$187,232
Non-operating income	356,682	34,853	321,830
Gross income	$4,114,541	$3,979,944	134,597
Interest on funded debt	1,463,433	1,027,320	436,118
Total deductions from gross income	$1,600,377	$1,216,188	$384,189
Net income	$2,514,164	$2,763,756	$249,592
Dividends	1,038,198	1,038,198	.....
Income balance	$1,475,966	$1,725,558	—$249,592

NORFOLK & WESTERN.—*Virginian Lease.*—Counsel for this company have filed with the Interstate Commerce Commission a 94-page statement of exceptions to the proposed report of Examiner Davis of the commission which recommended a denial of the application for authority to acquire control of the Virginian. The

Norfolk & Western also adopted the exceptions and brief filed by the Virginian in the same case and asked for an opportunity for oral argument before the full commission.

SOUTHERN PACIFIC.—*Equipment Trust.*—The Interstate Commerce Commission has authorized an issue of $5,654,000 of 4½ per cent equipment trust certificates, to be sold at not less than 97.2.

TEXAS-PACIFIC-MISSOURI PACIFIC TERMINAL OF NEW ORLEANS.—*Bonds.*—The Interstate Commerce Commission has authorized an issue of $1,040,000 of first mortgage 5½ per cent bonds, to be sold at not less than 99, and their guaranty by the Texas & Pacific and the Missouri Pacific.

WESTERN MARYLAND.—*Equipment Trust.*—This company has applied to the Interstate Commerce Commission for authority for an issue of $2,500,000 of 5 per cent equipment trust certificates.

WESTERN MARYLAND.—1925 *Earnings.*—Annual report for 1925 shows net income after interest and other charges of $1,779,059 equivalent to $10.02 a share on the first preferred stock. This stock is entitled to 7 per cent dividends cumulative from July 1, 1918, but no dividends have been paid. Net income in 1924 was $574,148 or $3.23 a share on the first preferred. Selected items from the income statement follow:

WESTERN MARYLAND

	1925	1924	Increase or decrease
Average mileage operated	804.44	804.44	.....
Railway operating revenues	$19,861,774	$19,135,563	$726,211
Maintenance of way	$2,493,541	$2,942,390	—$448,849
Maintenance of equipment	4,566,342	3,987,192	579,150
Transportation	5,802,371	6,112,632	—310,261
Total operating expenses	$13,965,557	$14,165,409	—$199,852
Operating ratio	70.31	74.03	—3.72
Net revenue from operations	$5,896,217	$4,970,154	$926,063
Railway tax accruals	775,205	915,000	—139,795
Railway operating income	$5,118,443	$4,053,579	$1,064,864
Equipment rents—Net Dr.	169,911	258,780	88,868
Joint facility rents—Net Dr.	222,374	234,163	—11,789
Net railway operating income	$4,726,158	$3,560,637	$1,165,521
Non-operating income	80,976	104,917	—23,940
Gross income	$4,807,134	$3,665,554	$1,141,581
Rent for leased roads	65,130	65,130	.....
Interest on funded debt	2,604,659	2,611,867	—7,207
Total deductions from gross income	$3,028,075	$3,091,406	—$63,331
Net income	$1,779,059	$574,148	$1,204,911

Average Price of Stocks and Bonds

	May 25	Last Week	Last Year
Average price of 20 representative railway stocks	91.76	88.95	81.06
Average price of 20 representative railway bonds	96.07	95.92	91.69

Dividends Declared

Chicago, Rock Island & Pacific.—6 per cent preferred, semi-annually, $3.00; 7 per cent preferred, semi-annually, $3.50; both payable June 30 to holders of record June 11.

Cincinnati, New Orleans & Texas Pacific.—Common, 4 per cent, semi-annually.

Consolidated Railroads of Cuba.—Preferred, 1½ per cent, quarterly, payable July 1 to holders of record June 15.

Cuba Railroad.—$1.20, quarterly, payable June 30 to holders of record June 29.

Erie & Pittsburgh.—$0.87½, quarterly, payable June 1 to holders of record May 29.

Midland Valley.—Preferred, $1.25, semi-annually, payable June 1 to holders of record May 24.

Valuation Reports

The Interstate Commerce Commission has issued final or tentative valuation reports placing the final value for rate-making purposes of the property owned and used for carrier purposes, as of the respective valuation dates, as follows:

FINAL REPORTS		
Chattanooga Station Company	$1,100,000	1916
TENTATIVE REPORTS		
Minnesota & International	$3,718,400	1917
Port Townsend	3,790	1917
Port Huron & Detroit	298,840	1919
Rapid City Black Hills & Western	900,865	1917
Aliquippa & Southern	1,215,247	1916

Railway Officers

Executive

Sarah Drain Edenborn has been elected president of the Louisiana Railway & Navigation Company, succeeding her husband, William Edenborn, deceased.

Z. G. Hopkins, manager of the department of public relations of the Missouri-Kansas-Texas, with headquarters at St. Louis, Mo., has been promoted to assistant to the president, in charge of the public relations, agricultural and industrial departments, with the same headquarters, a newly created position. Mr. Hopkins was born on August 11, 1877, at Solomon, Kan., and entered railway service in September, 1915, as special representative of the executive department of the Missouri-Kansas-Texas, with headquarters at St. Louis. He was promoted to general agent at St. Louis in July, 1918, and in March, 1919, was promoted to special assistant to the federal manager. Upon the termination of federal control of the railroads in 1920, Mr. Hopkins was appointed assistant to the chief operating officer. He was promoted to manager of the department of public relations on August 1, 1922, and held that position until his recent promotion to assistant to the president.

Z. G. Hopkins

Horace Johnson, who has been elected president of the Duluth & Iron Range, with headquarters at Duluth, Minn., was born in May, 1856, at London, England. His first railway service was with the Chicago & Alton at Chicago in 1877 and he was later employed by the Chicago, Milwaukee St. Paul and the Chicago & North Western. Mr. Johnson entered the service of the Duluth & Iron Range in November, 1888, as a bookkeeper and assistant to the auditor and general freight and passenger agent. He was promoted to secretary in 1902 and in 1906 was promoted to auditor and general freight and passenger agent. He held this position until 1918, serving also as secretary and auditor of the Spirit Lake Transfer Railway, the Interstate Transfer Railway and the Agate Bay Land Company, all subsidiaries of the United States Steel Corporation. From 1918 to 1920 Mr. Johnson served as federal auditor and general freight and passenger agent of the Duluth & Iron Range. At the end of government control in 1920 he was elected vice-president and held that position until his recent election as president.

H. Johnson

Joseph B. Barnes, assistant secretary, assistant treasurer and transfer agent of the Missouri-Kansas-Texas, has been elected a vice-president, with headquarters at New York City. He retains the office of assistant secretary and assistant treasurer. Mr. Barnes was born on September 13, 1869, at Liverpool, N. Y., and attended the public schools. He entered railway service in October, 1889, and until 1891, was a clerk for the St. Louis, Keokuk & Northwestern (now a part of the Chicago, Burlington & Quincy), and from the latter date until 1893, was a clerk in the auditor's office of the Chicago, Burlington & Quincy, Missouri lines. He became chief clerk to the auditor of the same lines in 1893. In 1901 he entered the service of the Missouri, Kansas & Texas as general accountant and cashier in the vice-president's office, with headquarters at New York City, which position he held until 1907, when he was appointed assistant secretary and assistant treasurer of the same company. From 1915 to April, 1923, he was agent for the receiver of the same company, and from the latter date until his recent election as vice-president, Mr. Barnes has been assistant secretary, assistant treasurer and transfer agent for the Missouri-Kansas-Texas.

Joseph B. Barnes

Financial, Legal and Accounting

W. K. Hammond has been appointed transfer agent of the Missouri-Kansas-Texas, with headquarters at new York City.

R. D. Rupp, acting regional accountant of the Pennsylvania, has been appointed regional accountant of the Eastern region, effective June 1.

F. J. Schillinger, chief clerk of the freight claim department of the Wabash, with headquarters at St. Louis, Mo., has been promoted to assistant to the freight claim agent, with the same headquarters.

L. L. Shepard, freight claim agent of the Ann Arbor, with headquarters at Toledo, Ohio, has been appointed freight claim agent of the Wabash, with headquarters at St. Louis, Mo., succeeding W. J. Tobin, who died on April 28.

The position of land and tax agent of the Central of Georgia has been abolished. This branch of the service has now become a bureau of the engineering department, under the direct supervision of **C. B. Niehaus,** real estate engineer, who has assumed the duties heretofore performed by **T. F. Smith,** deceased.

Operating

J. O. Hackenberg superintendent of the Philadelphia Terminal division of the Pennsylvania, has been promoted to general superintendent. **R. P. Russell,** superintendent of freight transportation, Eastern region, has been appointed superintendent of the Terminal division, succeeding Mr. Hackenberg. **J. B. Phelan,** superintendent of the Conemaugh division, has been appointed superintendent of freight transportation, Eastern region, succeeding Mr. Russell. **I. B. Sinclair,** superintendent of the Delaware division has been appointed superintendent of the Conemaugh division. **J. G. Sheaffer,** assistant superintendent of the Philadelphia division, has been appointed superintendent of the Delaware division. **N. B. Pitcairn,** superintendent of the Middle division, has been appointed superintendent of the New York division. **A. C. Watson,** superintendent of the Cleveland & Pittsburgh division, has been appointed superintendent of the Middle division. **T. B. Farrington,** superintendent of the Monongahela division, has been appointed superintendent of the Cleveland & Pittsburgh division. **T. C. Herbert,** superintendent of the Camden Terminal and Atlantic divisions, has been appointed superintendent of the Monongahela division. **L. K. Marr,** acting superintendent of the New York division, has been appointed superintendent of the Camden Terminal and Atlantic divisions, and **K. R. Vought,** acting assistant superintendent of the New York division, has been appointed assistant superintendent of the same division. These appointments are all effective June 1.

Mechanical

George Seeley, assistant chief draftsman of the Keyser Valley shops of the Delaware, Lackawanna & Western, with headquarters at Scranton, Pa., has been appointed assistant master car builder, with headquarters at Hoboken, N. J., succeeding J. P. Brogan, deceased.

Frank S. Robbins, who has been appointed superintendent of motive power and machinery of the Florida East Coast, with headquarters at St. Augustine, Fla., was educated in the public schools, the Newark Technical School (at night) and at Purdue University. Mr. Robbins entered the service of the Pennsylvania in 1900, and until 1907 was consecutively machinist apprentice and special apprentice at the Altoona shops. In 1907 he became inspector in the locomotive testing plant. During 1908 he was in the service of the Berwind White Coal Mining Company as Porto Rico Fuel Demonstrator, and then he returned to the Pennsylvania as assistant general foreman. In 1910 he became assistant road foreman of engines, and in 1912, assistant master mechanic. During the war he was for a time a captain in the engineers, was then with the Railway Transportation Corps, A. E. F., France, and later became superintendent of motive power of the 16th and 20th Grand divisions respectively, and in 1918 became a major in the engineers. He returned to the Pennsylvania again in 1919 as assistant engineer of equipment in the general office. Mr. Robbins then became master mechanic at the Pittsburgh Terminal. From 1921 to 1922 he was in China as mechanical advisor to the Inter-allied Technical Board of the Chinese Eastern Railway. In 1922 he entered the service of the Pittsburgh Testing Laboratory as railway representative and district manager of the Philadelphia office, which position he was holding at the time of his recent appointment as superintendent of motive power and machinery of the Florida East Coast.

Purchases and Stores

The headquarters of the Consolidated Purchasing Agency of the American Short Line Railroad Association, together with those of its manager, **J. W. Cain,** have been moved from Chicago to Houston, Tex., effective May 15.

Engineering, Maintenance of Way and Signaling

W. G. Coughlin, chief engineer, maintenance of way, of the Eastern region of the Pennsylvania, has been assigned to special duty in the office of the general manager of the Eastern region. **W. T. Covert,** engineer, maintenance of way, of the Western Pennsylvania division, has been appointed chief engineer, maintenance of way, of the Eastern region. **S. L. Church,** engineer, maintenance of way, of the Lake division, has succeeded Mr. Covert as engineer, maintenance of way, of the Western Pennsylvania division, and **H. C. Johnson,** division engineer, of the Cincinnati division, has been appointed engineer, maintenance of way, of the Lake division. These appointments are all effective June 1.

Obituary

Louis Ernest, general master mechanic of the Minneapolis, St. Paul & Sault Ste. Marie, died in Minneapolis, Minn., on May 24, after a short illness.

Harry Sneck, supervisor of air brakes of the Buffalo, Rochester & Pittsburgh, with headquarters at DuBois, Pa., died on May 16, after a brief illness.

Thomas W. Crowley, superintendent of the Adirondack division of the New York Central, died in Watertown, N. Y., on May 23, after a prolonged illness. Mr. Crowley was 56 years of age.